City of Pomona

Final

2010 Urban Water Management Plan

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RMC Water and Environment

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Appendix A – Urban Water Management Planning Act

Appendix B – DWR UWMP Checklist

Appendix C – Notification Documents & Resolution Approving the 2010 UWMP Update

Appendix D – Chino Basin Judgment

Appendix E – Six Basins Judgment

Appendix F – Water Conservation and Water Supply Shortage Program and Regulations

Appendix G – Emergency Response Plan

Appendix H – BMP Activity Reports, DMM Supplement

Section 1 Plan Preparation

An Urban Water Management Plan (UWMP) is prepared by a water purveyor to ensure an appropriate level of water service reliability sufficient to meet the needs of its customers during normal, single dry or multiple dry years. The California Urban Water Management Planning Act of 1983 (UWMP Act), as amended, requires urban water suppliers to develop an UWMP every five years in the years ending in zero and five.

In describing the importance of the UWMP Act, the legislature declared that waters of the State are a limited and renewable resource, subject to ever increasing demands as well as the following tenants:

- That the conservation and efficient use of urban water supplies are of statewide concern;
- That successful implementation of plans is best accomplished at the local level;
- That conservation and efficient use of water shall be actively pursued to protect both the people of the State and their water resources;
- That conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and
- That urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

The City of Pomona's (City) 2010 UWMP has been prepared in compliance with the requirements of the Act, as amended in 2009 (included here as Appendix A), as well as the requirements of the California Department of Water Resources (DWR) as outlined in the Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (DWR Guidebook). The City's 2010 UWMP includes the following sections:

1. Plan Preparation
2. System Description
3. System Demand
4. System Supplies
5. Water Reliability
6. Water Use Efficiency
7. References

1.1 Urban Water Management Planning Requirements

The City's 2010 UWMP revises the 2005 UWMP prepared by the City and incorporates changes enacted by legislation since 2005. The UWMP also incorporates water use efficiency efforts the City has implemented or is considering implementing pursuant to the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) with the California Urban Water Conservation Council (CUWCC). The City has been a signatory to the MOU since November 1996.

The sections in this UWMP correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633 as well as DWR's Guidebook . The most recent version of DWR's UWMP Checklist has been completed, which identifies the location of Act requirements in this UWMP and is included as Appendix B.

Since 2005, several amendments have been added to the Urban Water Management Act. The major changes to the Act impacting preparation of the 2010 UWMPs include the following:

- Requirement of at least 60 days advance public notice of preparation to city or county prior to public hearing on UWMP;

- Requirement that the UWMP includes water use projects for single-family and multi-family residential housing needed for low income and affordable households (retailers only); and
- Requirement that "indirect potable reuse" of recycled water be described and quantified in the UWMP, including a determination with regard to the technical and economic feasibility of serving those uses.

However, the most significant impact on 2010 UWMPs was the requirements mandated through the passing of Senate Bill (SB) X7-7. On November 10, 2009, the state legislature passed SB X7-7 (or the Water Conservation Bill of 2009) as a water conservation component to the Delta legislative package that seeks a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. SB X7-7 requires that each retail agency preparing a 2010 UWMP must calculate a baseline water use as well as an interim (for 2015) and final (for 2020) water use reduction target. The methodologies used to calculate both the baseline and targets were outlined in the Draft and Final UWMP guidelines published by DWR in December 2010 and March 2011. Since final guidelines were not released until March 2011, the deadline for retailer UWMP adoption and submittal was extended to July 1, 2011.

1.2 Coordination with Recent City Planning

In 2010, the City began development of an Integrated Water Supply Plan (IWSP) in advance of the 2010 UWMP update. The IWSP was developed to provide the City with a plan to meet near- and long-term water demands through the use of the most beneficial and cost-effective supplies. The IWSP conducted the demand assessment on supply portfolio development that is used for the 2010 UWMP demand and supply projections through 2035. Previous plans completed by the City to inform the IWSP and UWMP include the City's Recycled Water Master Plan (RWMP) (November 2009), Pedley Filter Plant Feasibility Study (April 2009), Water Supply Assessment for the proposed Pomona Valley Hospital Medical Center (March 2009), and Water and Recycled Water Master Plan (May 2005).

1.3 Agency Coordination and Public Participation

1.3.1 Public Participation

The City has encouraged participation in its urban water management planning efforts since the first plan was developed in 1995. Copies of the draft plan were made available for public review at City offices to facilitate the involvement of various social, cultural and economic elements of the population. At the close of the review period, a public hearing was held on June 20, 2011 to receive public comments on the draft 2010 UWMP. Following the hearing the UWMP was formally adopted by the City Council. Notice of the public hearing was published in the local newspaper and posted at City Hall. A copy of the notice of public hearing and formal adoption is included in Appendix C.

1.3.2 Agency Coordination

The City coordinated with external agencies in the development of the 2010 UWMP. The City receives imported water supplies as a retailer to the Three Valleys Municipal Water District (TVMWD), which is a member agency of the Metropolitan Water District of Southern California (MWD). A Notice of Preparation letter was sent to this wholesale agency, to the Sanitation Districts of Los Angeles County (SDLAC) as the City's recycled-water wholesaler, the County of Los Angeles as well as other neighboring agencies. Table 1-1 provides a summary of the coordination among the City and its neighboring agencies during the development of the 2010 UWMP.

Table 1-1: Coordination with Agencies

Coordinating Agencies	Sent notice of preparation	Commented on the draft	Attended public hearing[1]	Provided copy of final UWMP
City of Chino Hills	X			X
City of Claremont	X			X
City of Walnut	X			X
Los Angeles County Department of Public Works	X			X
Three Valleys Municipal Water District	X	X	X	X
West Valley Water District	X			X
Sanitation Districts of Los Angeles County	X			X

1.4 Plan Adoption, Submittal, and Implementation

The draft 2010 UWMP was completed in June 2011 and was available for a 14 day-public review prior to the public hearing. Copies of the draft UWMP were available at the City Clerk's Office. The UWMP was adopted by a resolution of the City Council on June 20, 2011. The final UWMP was then submitted to DWR within 30 days of Council approval. Copies of the Notice of Public Hearing and the Resolution of UWMP Adoption are included in Appendix C. Copies of the final UWMP were made available to the public at the City Clerk's Office within 60 days of submission to DWR.

The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in the region's water supply trends and conservation policies. This UWMP, along with the City's other planning documents, will be used by City staff to guide its service area's water use and management efforts through the year 2015, when the UWMP is required to be updated again.

Section 2 System Description

2.1 Service Area Physical Description

Located in eastern Los Angeles County, the City is 22.9 square miles and was incorporated in January 1888. The City provides water services to all residential, commercial and industrial customers and for environmental and fire protection within the City, with the exception of three areas. These areas are:

- An irregular area of approximately 40 acres south of Foothill Boulevard and west of Towne Avenue served by Golden State Water Company (GSWC);
- An area of about 20 acres north of Foothill Boulevard and west of Garey Avenue served by the Golden State Water Company (GSWC); and
- A small portion of the City located north of Valley Boulevard and west of Temple Avenue served by the Walnut Valley Water District (WVWD).

The City also services about 275 acres of residential property and open space area outside of the City limits including approximately 98 percent of the Rolling Ridge Estates south of the Pomona Freeway and west of the Corona Expressway. Additionally, the City exports recycled water to Cal Poly Pomona and Bonelli Park to the west of the service area.

The demand within the City's service area is met through a variety of sources including groundwater, local surface water, imported water and non-potable water. These various sources and the City's topography require a complicated water system. The existing potable water system consists of eleven pressure zones and has 22 storage reservoirs, 15 active booster pumping stations, 41 groundwater wells, four imported water connections, two inter agency connections, seven California Department of Public Health (CDPH) permitted water treatment facilities, one spreading ground and 28 pressure regulating stations. The potable water distribution system has about 6,000 fire hydrants and approximately 421 miles of pipelines. The non-potable system consists of SDLAC's Pomona Water Reclamation Plant (PWRP), three non-potable water wells within the Spadra Basin, two reservoirs, six booster pumps, two pressure zones and two transmission lines. Figure 2-1 shows the City's service area and major facilities.

2.2 Climate

Warm, dry summers, low precipitation, and mild winters characterize the climate in the City. The average daily winter temperature is 51° F and the average daily summer temperature is 75° F. Throughout the year, temperatures range from a low near 20° F during the winter to a high of over 100° F during the summer. Approximately 90 percent of annual rainfall occurs between November and April with more than two-thirds of the total rainfall occurring from December through March. Mean annual precipitation ranges from 13 inches to 25 inches. In the San Gabriel Mountains to the north, average rainfall has reached as high as 40 inches with extremes ranging between 20 to 200 percent of normal. Relative humidity averages 45 percent year-round, 40 to 70 percent in winter, and 10 to 20 percent in the summer. Occasionally during autumn and winter, "Santa Ana" conditions develop from a high pressure zone to the east. This brings dry, high velocity winds from the deserts to the east and northeast over Cajon Pass. Gusting to over 80 mph, these winds can reduce relative humidity to below 10 percent.

Areas with lower precipitation, typical in Southern California, can be vulnerable to droughts. Historically, the City has experienced patterns of multiple dry years that have resulted in severe drought periods as was experienced in 1977-78, 1989-92, 1999-2004, and most recently 2007-09. Excessively dry conditions increase the local demand given that less natural precipitation is available to meet landscaping irrigation needs. Drought conditions can result in shortages given that this increase in demand can be coupled with a decrease in local or imported supplies. This has not occurred in the City due to supply historically exceeding demand.

Figure 2-1: City Service Area Boundary and Physical System

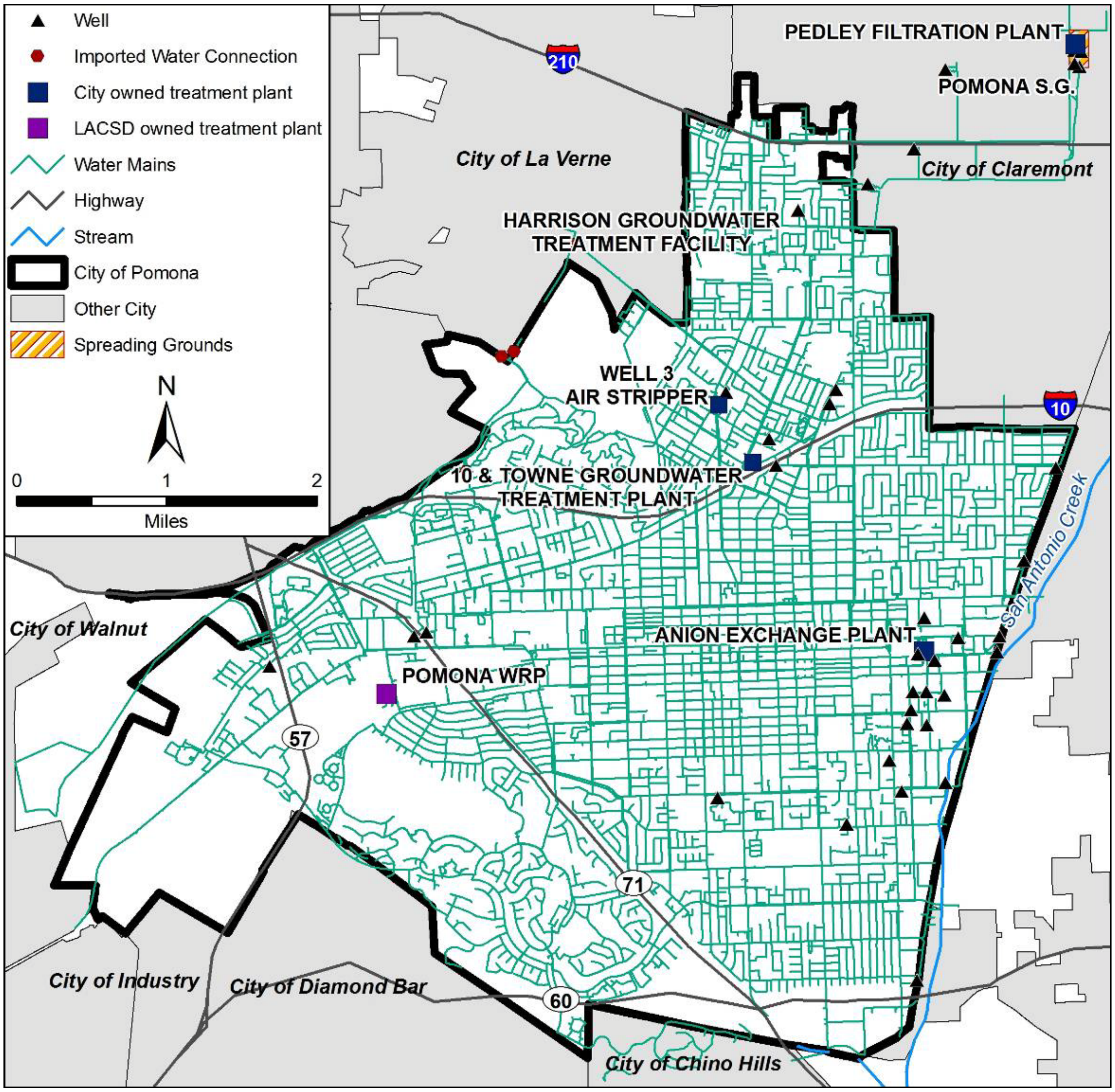


Table 2-1 illustrates the historical average climate conditions for the City of Pomona. The potential for changes to the local climate and the resulting impacts are further discussed in Section 5: Water Reliability.

Table 2-1: City of Pomona Average Monthly Climate

	Jan	Feb	Mar	Apr	May	Jun
Standard Evapotranspiration (inches)	1.72	2.03	3.37	4.54	5.00	5.80
Precipitation (inches)	3.6	3.5	2.9	1.2	0.4	0.1
Temperature (Fahrenheit)	52°	54°	56°	60°	64°	69°

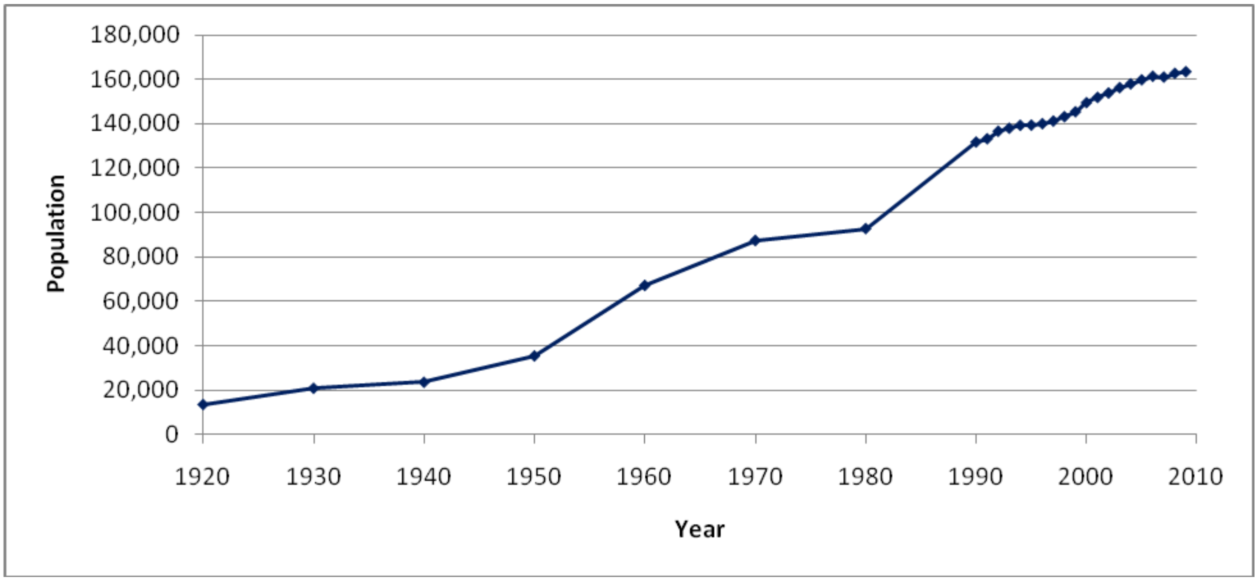
	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Standard Evapotranspiration (inches)	6.51	6.39	4.69	3.48	2.27	1.71	47.51
Average Precipitation (inches)	0.01	0.07	0.3	0.8	1.6	2.8	17.2
Average Temperature (Fahrenheit)	74°	75°	72°	65°	58°	52°	62°

Evapotranspiration: California Irrigation Management Information System, Pomona Station (78), 1989 to present
Precipitation and Temperature: Western Regional Climate Center, Pomona Fairplex Station (047050), 1893 to 2010

2.3 Population and Demographics

The City's service area is heavily urbanized and is near general plan build-out. Figure 2-2 displays the historical population from 1920 to 2009, and Table 2-2 displays the current and projected population within the City's service area over the next 25 years. Historical population has increased steadily since 1920, and this increase is expected to continue in the future. The population increase is expected to be approximately 1% per year, while employment (measured as the number of jobs within the City) is estimated to increase approximately 4% per year. Since the service area of the City is nearly contiguous with City boundaries, the Southern California Association of Governments (SCAG) population estimates for the City of Pomona were used.

Figure 2-2: Historical Population (1920-2009)



Source: Census Data 1920-1990, SCAG 1990-2009

Table 2-2: City of Pomona Current and Projected Population

Year (Calendar Year)	2010	2015	2020	2025	2030	2035
Total Population	**170,229**	**179,799**	**189,552**	**198,998**	**208,144**	**216,899**
Total Households	40,694	43,013	45,458	47,366	49,209	50,725
Persons Per Household	4.2	4.2	4.2	4.2	4.2	4.2
Employment (# of jobs within City)	55,546	57,018	57,958	59,063	60,243	61,373

Source: SCAG 2008 Growth Forecast

Within the City, a large number of households are considered lower income, defined as earning less than 80% of the median household income (MHI). According to the City's 2008-2013 Consolidated Housing Plan, approximately 46% of total households meet this criterion based on 2000 Census data. The Consolidated Plan was submitted to the United States Department of Housing and Urban Development in 2008. The areas of low income concentration are in the western and downtown areas of the City. Since these areas are within the City's central water distribution system, there is no difference in supply or reliability to these areas relative to other areas within the City's system.

Section 3 System Demands

3.1 Overview of Water Use

With an estimated current population of approximately 170,000 as well as commercial, industrial and institutional areas, the total current water demand within the City's service area is about 24,000 AFY. While in the past, demand in the City has historically increased due to increasing population growth, recent years have resulted in a decrease in overall system demand. The City's 2005 UWMP projected a 2010 demand of nearly 5,000 AFY more than what was experienced this past year. This decrease has been attributed to drought conditions in 2007-8 and resulting conservation program implementation, an economic downturn in 2008-2010 which decreased consumption, and subsequent wet seasons in 2009 and 2010.

These decreases have been experienced throughout Southern California and have come at a time when California has implemented new legislation calling for an overall 20% decrease in per capita water use by the year 2020. The City's 2010 UWMP provides a target for per capita water use reductions by 2020 with an interim target for 2015 that is in compliance with the State's Water Conservation Bill of 2009. This section will explore in greater detail the City's historical, current and projected water demands.

3.2 Water Demands

Water demands in the City are primarily made up of potable water deliveries to residential, commercial, industrial, and institutional users within the system boundaries described in the previous section. In addition to these uses, the City also experiences some annual system water losses and sells recycled water to users outside of the City's service area as exported supply. Table 3-1 is a summary of the historical, current and projected water uses met by City supplies.

Table 3-1: In-City and Export Water Use

Water Use	2005	2010	2015	2020	2025	2030	2035
Water deliveries within service area	23,725	18,594	21,410	22,465	23,545	24,535	25,700
Unaccounted for Water	5,219	2,467	1,043	1,573	1,648	1,717	1,800
Water used within City	**28,944**	**21,061**	**22,453**	**24,038**	**25,193**	**26,252**	**27,500**
Sales of recycled water outside of City	2,059	1,500	2,095	2,095	2,095	2,095	2,095
Water exported outside of City	**2,059**	**1,500**	**2,095**	**2,095**	**2,095**	**2,095**	**2,095**
Total	**31,003**	**22,561**	**24,548**	**26,133**	**27,288**	**28,347**	**29,595**

3.2.1 Water Deliveries

The historical, current and projected annual water deliveries made by the City are shown in Table 3-2 through Table 3-6. These tables show actual water deliveries made in 2005 and 2010 as well as projected deliveries for 2015 to 2035. The deliveries are broken into categories of use assuming the demand projections previously described, and include both potable and non-potable use.

Based on the City's water delivery demand projection, it is assumed that total demand will be flat between 2010 and 2015, and then increase by approximately 1% per year starting from 2009 demands. The number of accounts is assumed to increase proportionally to the projected increase of overall demand as in previous years. It should be noted that since 2005, the City has put meters on all connections, meaning there are no longer unmetered accounts. The City has demand in the water use sectors of single family residential, multi-family residential, commercial/industrial/institutional, landscape, and other uses such as fire lines. The following tables do not show demand in the other category because there is no consumption registered for fire lines.

Table 3-2: 2005 Actual Water Deliveries (af)

	Metered		Not metered		Total
Water use sectors	# of accounts	Volume (afy)	# of accounts	Volume (afy)	Volume (afy)
Single family	23,415	11,911	0	0	11,911
Multi-family	2,328	4,179	0	0	4,179
Commercial/Industrial/ Institutional	2,604	6,320	0	0	6,320
Landscape	491	1,315	0	0	1,315
Agriculture	0	0	0	0	0
Other	38	0	469	0	0
Total	28,876	23,725	469	0	23,725

Table 3-3: 2010 Actual Water Deliveries (af)

	Metered		Not metered		Total
Water use sectors	# of accounts	Volume (afy)	# of accounts	Volume (afy)	Volume (afy)
Single family	23,604	9,788	0	0	9,788
Multi-family	2,410	3,931	0	0	3,931
Commercial/Industrial/ Institutional	2,969	3,766	0	0	3,766
Landscape	417	1,109	0	0	1,109
Agriculture	0	0	0	0	0
Other	476	0	0	0	0
Total	29,876	18,594	0	0	18,594

Table 3-4: 2015 Projected Water Deliveries (af)

	Metered		Not metered		Total
Water use sectors	# of accounts	Volume (afy)	# of accounts	Volume (afy)	Volume
Single family	25,179	10,441	0	0	10,441
Multi-family	2,464	4,019	0	0	4,019
Commercial/Industrial/ Institutional	4,481	5,684	0	0	5,684
Landscape	476	1,266	0	0	1,266
Agriculture	0	0	0	0	0
Other	476	0	0	0	0
Total	33,076	21,410	0	0	21,410

Table 3-5: 2020 Projected Water Deliveries (af)

	Metered		Not metered		Total
Water use sectors	# of accounts	Volume (afy)	# of accounts	Volume (afy)	Volume
Single family	26,372	10,936	0	0	10,936
Multi-family	2,590	4,224	0	0	4,224
Commercial/Industrial/ Institutional	4,710	5,974	0	0	5,974
Landscape	500	1,331	0	0	1,331
Agriculture	0	0	0	0	0
Other	476	0	0	0	0
Total	34,648	22,465	0	0	22,465

Table 3-6: 2025-2035 Projected Water Deliveries (af)

	2025 metered		2030 metered		2035 metered	
Water use sectors	# of accounts	Volume (afy)	# of accounts	Volume (afy)	# of accounts	Volume (afy)
Single family	27,556	11,427	29,211	12,113	30,964	12,900
Multi-family	2,722	4,440	2,791	4,552	2,861	4,700
Commercial/Industrial/ Institutional	4,950	6,279	5,075	6,437	5,202	6,600
Landscape	526	1,399	539	1,433	552	1,500
Agriculture	0	0	0	0	0	0
Other	476	0	476	0	476	0
Total	36,230	23,545	38,092	24,535	40,055	25,700

3.2.2 Unaccounted for Water and Delivery Exports

In addition to the above water deliveries, the City's system has an assumed percentage of unaccounted for water and exports of water to users outside of the City's service area. Table 3-7 presents the historic, current and projected unaccounted for water, which is the difference between the volume of water delivered to the distribution system and the metered sales shown in Table 3-2 through Table 3-6. Unaccounted for water includes distribution system losses, fire hydrant flushing and customer meter error. Historic annual unaccounted-for water is on average seven percent of total production and is projected to remain about the same.

Table 3-7: Unaccounted for Water (af)

Water use	2005	2010	2015	2020	2025	2030	2035
Unaccounted for Water	5,219	2,467	1,043	1,573	1,648	1,717	1,800

The City exports a portion of its recycled water supplies to meet demands outside of its service area. Table 3-8 shows the historic, current and projected recycled water sales to the City's current customers - Cal Poly Pomona and Bonelli Park. Demand beginning in 2015 is based on the customer analysis performed as part of the City's 2009 RWMP. It is assumed that these exports will remain the same through 2035 and that no additional export customers will be served.

Table 3-8: Recycled Water Sales for Export Customers (af)

Water distributed	2005	2010	2015	2020	2025	2030	2035
Bonelli Park	774	735	855	855	855	855	855
Cal Poly Pomona	1,285	765	1,240	1,240	1,240	1,240	1,240
Total	**2,059**	**1,500**	**2,095**	**2,095**	**2,095**	**2,095**	**2,095**

3.2.3 Estimated Demands for Lower-Income Households

The estimated lower income water use projections for single-family and multi-family housing units as identified in the 2008-2013 Consolidated Housing Plan can be found in Table 3-9. These were calculated based on the percentage of low income households identified in Section 2.3: Population and Demographics. Within the City's service area, approximately 46% of households are considered low income. This percentage is applied uniformly to the total single family residential and multi-family residential demand projections above, and is assumed to remain constant through 2035. The projected low income water demands are shown in Table 3-9.

Table 3-9: Projected Low Income Water Demands (af)

Low Income Water Demands	2015	2020	2025	2030	2035
Single-family residential	4,803	5,031	5,256	5,572	5,906
Multi-family residential	1,849	1,943	2,042	2,093	2,147
Total	**6,652**	**6,974**	**7,298**	**7,665**	**8,053**

3.2.4 Wholesaler Demand Projections

The City obtained the water use projection data shown in **Table 3-10** from the TVMWD Regional UWMP. These demands reflect the City's projected Tier 1 allocation.

Table 3-10: Retail Agency Demand Projections from Wholesale Supplier (af)

Wholesaler	Contracted Volume	2010	2015	2020	2025	2030	2035
TVMWD	6,799	6,799	6,799	6,799	6,799	6,799	6,799

3.3 Per Capita Baseline and Targets

The Water Conservation Bill of 2009 requires individual retail water suppliers to set water conservation targets for 2015 and 2020 to support an overall State goal of reducing urban potable per capita water use by 20% by 2020. Individual supplier conservation targets must be determined using one of four methods that are based upon a baseline of use that is calculated using the specific guidelines described in DWR's Guidebook. These steps are discussed in this section.

3.3.1 Base Daily Water Use

The City used the step by step process called out in the DWR Guidebook to determine the base daily water use. That process and the resulting calculations are described here.

<u>Step 1: Determine Supplier Base Period Year Ranges</u>

Recycled water deliveries in 2008 for the City totaled 10.8 million gallons, which is less than 10% of the City's total demand. Therefore the City must select a 10 year range to calculate their baseline use, as shown in **Table 3-11**. The City must also calculate a five-year base period for use in determining the maximum allowable water use as described in Section 3.3.2. The base periods were selected by determining the most appropriate set of years to represent the City's baseline use given the methodologies available through DWR.

Table 3-11: Base Period Ranges

Base	Parameter	Value	Units
10- year base period	2008 total water deliveries	25,823	af
	2008 total volume of delivered recycled water	33	af
	2008 recycled water as a percent of total deliveries	0.1	%
	Number of years in base period	10	Years
	Year beginning base period range	1995	
	Year ending base period range	2004	
5-year base period	Number of years in base period	5	Years
	Year beginning base period range	2003	
	Year ending base period range	2007	

Step 2: Estimate Distribution System Area and Population

The service area for the City substantially overlaps the City boundaries (≥ 95%), therefore the City falls under Category 1 as described in Methodology 2: Service Area Population of the DWR Guidebook. Category 1 means that a special census tract calculation will not be necessary and the City population projections can be used to represent the population of the City's service area. The City's population projections came from SCAG which bases its projections on census data. The population for each of the base years is provided in Table 3-11.

Step 3: Calculate Gross Water Use

The gross water use for the City was calculated using DWR's Methodology 1 using the steps listed below for 2008 as well as the years used to calculate the base daily per capita water use. The gross water use calculated for the City is shown in Table 3-12.

1. **Define the 12-month calculation period:** The 12-month calculation period used was based on the calendar year.
2. **Delineate the distribution system boundary:** The distribution system boundary is defined in Section 2 of this UWMP.
3. **Compile water volume from own sources:** The City's own sources of water entering the distribution system include groundwater and local surface water. These volumes were compiled into annual totals based on calendar year: These volumes were corrected based on an assumed meter error of 5%.
4. **Compile imported water volume:** Water imported into the distribution system was tabulated annually based on calendar year. The same meter error described above was applied.
5. **Compile exported water volume:** This step does not apply as there were no potable water exports that were previously included in production data and served with Pomona's internal distribution system.
6. **Calculate net change in distribution system storage:** There is no long-term storage maintained by the City and therefore changes in distribution storage were found to be negligible.
7. **Calculate gross water use before indirect recycled water use deductions:** The gross water use was calculated as the sum of water volumes determined in Step 3 and Step 4.

8. **Deduct recycled water used for indirect potable reuse from gross water use:** The City does not use recycled water for indirect potable reuse.
9. **Calculate gross water use after deducting indirect water use:** Subtract the volume determined in Step 8 from the volume in Step 7.
10. **Deduct from gross water use the volume of water delivered for agricultural use:** This step is not applicable given that the City does not supply water for agricultural use.
11. **Deduct volume of water delivered for process use:** This step is not applicable given that the City no longer supplies water for large industrial process use.
12. **Calculate gross water use after optional deductions:** Subtract the volumes determined from Steps 10 and 11 from Step 9.

Step 4: Calculate Base Per Capita Demand

An annual per capita use was determined by dividing the City's actual gross potable water use by the service area population for the base year range. A final base daily per capita demand is calculated by taking the average per capita use for all years within the selected 10-year range (as shown in Table 3-12).

The five-year base range was used to calculate average per capita demand more recently to determine whether the City was under a 100 gpcd threshold. If the five-year base per capita use was less than 100 gpcd, then there is no maximum target for that supplier since they would be considered by DWR to be sufficiently efficient in water use. Since the City's five-year base per capita water use is greater than 100 gpcd, a per capita target will need to be determined.

Table 3-12: Base Daily per Capita Water Use

Sequence Year	Calendar Year	Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
1	1995	140,598	24.6	175.3
2	1996	142,373	26.4	185.5
3	1997	144,148	27.6	191.8
4	1998	145,923	24.6	168.6
5	1999	147,698	27.5	186.3
6	2000	149,473	28.3	189.1
7	2001	152,095	26.6	174.1
8	2002	157,339	24.2	153.8
9	2003	157,339	26.4	167.8
10	2004	159,095	25.9	162.6
	10-Year Base Daily Per Capita Water Use			**175.5**
1	2003	157,339	26.4	167.8
2	2004	159,096	25.9	162.6
3	2005	160,852	24.2	150.7
4	2006	172,104	25.5	147.9
5	2007	173,980	25.8	148.4
	5-Year Base Daily Per Capita Water Use			**155.5**

3.3.2 Water Use Target

The water use target was calculated by first determining which of the four following allowable target calculation methods would be used.

- Method 1: 80% of ten-year baseline per capita use
- Method 2: Applying performance standards
- Method 3: 95% of the DWR South Coast Region target of 149
- Method 4: Applying savings by water sector

The City chose to use Method 3 to apply to the 10-year base per capita water use calculated in Table 3-12 to determine a target per capita water use level for 2020. Once this target was determined, it was confirmed by comparing it against DWR's maximum allowable target. The maximum allowable target is equivalent to 95% of the City's five-year base per capita use shown in Table 3-13. Since the 2020 calculated target represents a lower per capita use than the maximum allowable target, the calculated target must be used. Once the final 2020 water use target was calculated, then an interim 2015 target was created by calculating the median between the 10-year base per capita use and the final 2020 target.

The 2020 calculated target for the City is 141.6 gpcd, with an interim 2015 goal of 156.8.

Table 3-13: 2015 Interim and 2020 Target (gpcd)

10-Year Base Water Use	10-Year Base Water Use		Maximum Allowable Target	Final Targets	
	Method	Target		2015	2020
175.5	3	141.6	147.7	156.8	141.6

3.4 Water Use Reduction Plan

It is expected that the City will be able to meet these water use reduction targets in 2015 and 2010 by further implementing water use efficiency programming and increasing recycled water use.

3.4.1 Water Use Efficiency Programs

The City will continue existing conservation programs as well as implement new programs to ensure that they will decrease the current usage and meet the urban water use target in 2015 and 2020. Existing and planned programs are described in Section 6: Water Use Efficiency and listed here in Table 3-14.

3.4.2 Recycled Water Projects

Additionally, the City expects to increase non-potable reuse within its service area through the expansion of the current non-potable reuse system to new customers. This expansion is discussed in detail in Section 4, but could potentially offset an additional 1,500 afy of potable demand.

3.4.3 Potential Economic Impacts

The City has experience planning for and implementing proactive policies to handle the impact of reduced water use. The City is in the process of preparing a cost of service study which will include potential rate impacts as a result of the overall cost to meet the City's projected demand, take into account additional costs to comply with drinking water regulations and new or revised water quality standards, and will include the implementation of conservation projects, and non-potable reuse projects. The City is also planning on obtaining funding from grants, loans, and other sources as a means to implement the overall strategies called out in the City's IWSP that include conservation and recycled water projects and programs.

Table 3-14: Water Conservation Projects

Conservation Project	Potential Water Savings[1]
Automatic meter reading (AMR)/Advanced metering infrastructure (AMI) phased project	Savings not quantified
Outdoor water surveys for single family customers with weather based irrigation controllers and nozzle give-a-ways	37 gpd per WBIC 12.2 gpd per outdoor survey
Residential plumbing retrofits	5.2-5.8 gpd per showerhead 1.5 gpd per aerator 4.2 gpd per toilet dam
System water audits, leak detection, and repair	Variable
Large landscape conservation programs and incentives	19-35% savings
Turf removal rebates	Up to 70% savings per household
High efficiency washing machine rebate program	14.4-28.7 gpd per machine (single family) 53.8-107.7 gpd per machine (multi- family)
School education	Savings not quantified
Public education	Savings not quantified
Advertising	Savings not quantified

1. CUWCC BMP Costs and Savings Study (A&N, 2005)

Section 4 System Supplies

The City operates a mix of local surface water, groundwater, imported water, recycled water, and potable water distribution systems in order to meet the needs of its service area. Anticipated future increases in population and the rising cost of imported supplies are challenging the City to continue to diversify its supply portfolio to efficiently meet new demands through expanded recycled water distribution, enhanced conservation programming, new well development, and additional treatment capacity for increasing local water production. This section describes the City's historical, current and projected supplies that will be used to meet the demands described in Section 3.

This section provides an overview of the current and future water supplies available to meet the expected demands within the City's service area including imported, ground, local surface and recycled water supplies. Water quality issues for all supplies are discussed in Section 5 of this UWMP. Please note that all supply values are for the calendar year.

4.1 Pomona's 2011 Integrated Water Supply Plan

In order to provide guidance on future supply and water demands for inclusion in this 2010 UWMP update, the City began development of an Integrated Water Supply Plan (IWSP) in June 2010. The primary goal of the IWSP is to identify a 25 year strategy to ensure that the City's future water system is reliable, efficient, and capable of responding to changes in source water quality, increasing water quality regulations, imported water availability, and new water treatment technologies. The IWSP process includes assessing baseline supply and demand, identifying individual supply or demand management project options, developing alternatives based on those options, and evaluating the alternatives.

Through the IWSP process, it was determined that the City has a wide variety of supply options that could potentially exceed any increases in future demands by 2035. The cost and ability to access and/or use these supplies was considered in determining future alternatives for the City. The City is also exploring options to help neighboring agencies benefit from any excess supplies, while providing a source of funding to finance the City's needs for future infrastructure projects to ensure water quality and water supply reliability for its customers.

The IWSP process resulted in the selection of a suite of supply and conservation project and programs that are reflected in Section 3: Demand and this Section 4: Supply.

4.2 Overview of the City's Supplies

In the past, the City has relied on a moderately diverse mix of water resources as shown in Table 4-1. As seen in Figure 4-1, the City's current water supply portfolio was comprised of 68% potable groundwater, 16% imported water, 15% local surface water, and 1% non-potable water (a combination of recycled and untreated groundwater).

Table 4-1: Historical Retail Water Supply (af)

Supplies	2005	2006	2007	2008	2009
Groundwater (potable)	16,784	15,139	17,784	16,921	16,711
Imported Water	5,866	8,465	7,648	5,895	2,525
Local Surface Water	2,755	3,053	1,676	2,683	3,121
Recycled Water[1]	3,539	3,427	597	33	18
Total	**28,944**	**30,084**	**27,705**	**25,532**	**22,375**

1. Recycled water includes only in-City supplies as a combination of effluent from the PWRP and non-potable water pumped from the Spadra Groundwater Basin.

With the implementation of the long-range IWSP alternative, the diversification of the City's supply portfolio will continue to increase. It is projected that by 2035, the resource mix on average will be 73% groundwater, 11% imported, 10% local surface water, and 6% non-potable recycled water also shown in Figure 4-1. These percentages are based on the change in supply from 2010 to 2035 in Table 4-2 which shows supply projections in five year increments. As Table 4-2 shows, the City is planning to increase its internal use of recycled water supplies as well as invest in increased production from local groundwater supplies. Coupled with conserved supply through water use efficiency programs, the overall imported water use is expected to be reduced.

Figure 4-1: Current and Projected Water Supplies

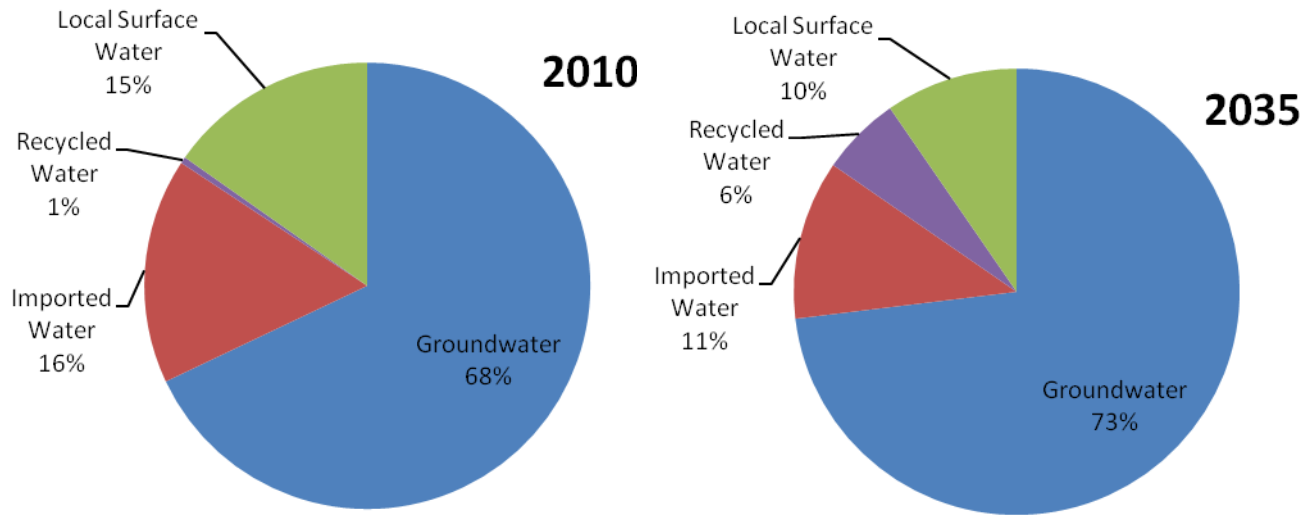


Table 4-2: Current and Projected Water Supplies (af)

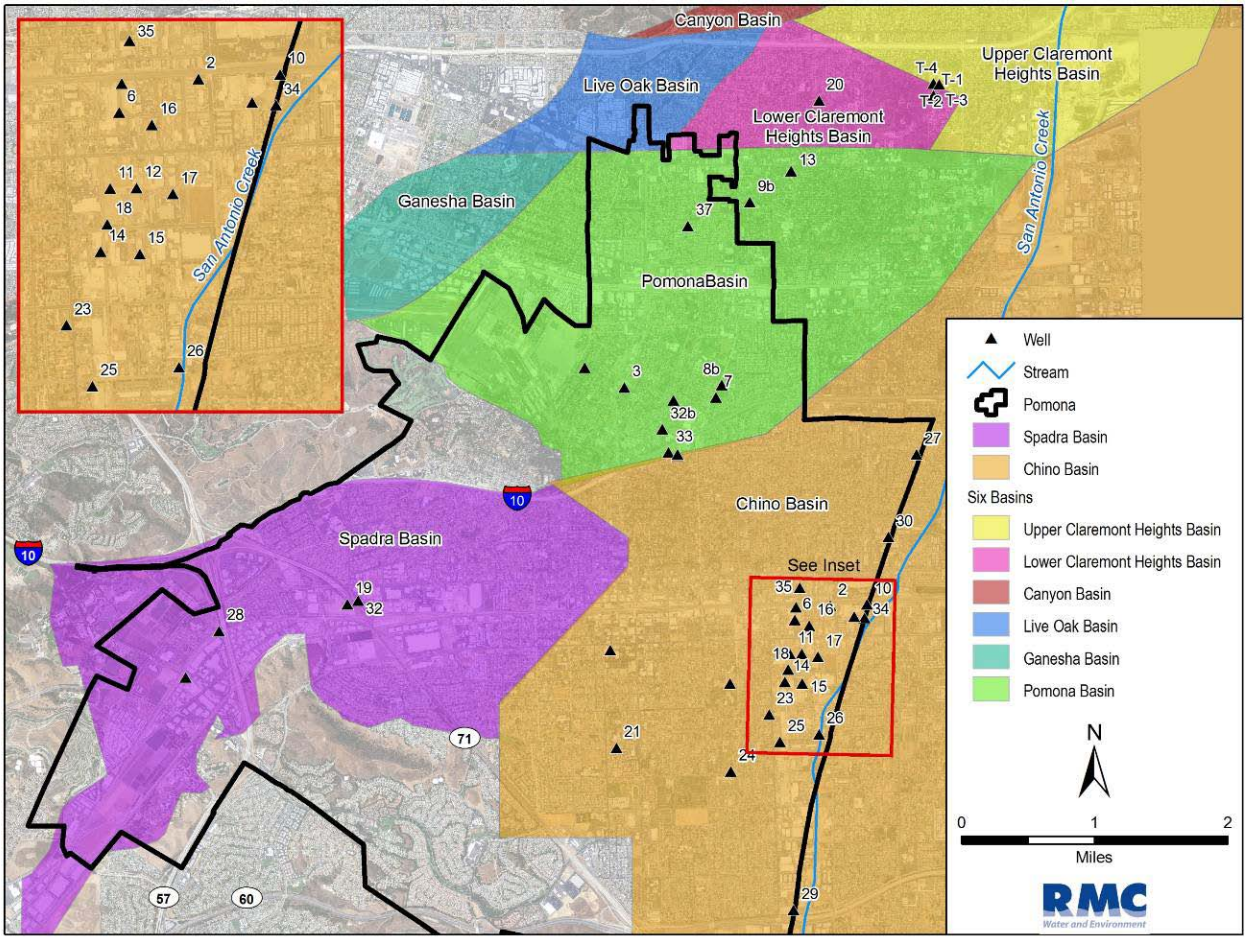
Water Supply Sources	2010	2015	2020	2025	2030	2035
Imported Water	3,471	2,000	1,738	2,393	2,452	3,000
Groundwater (Potable)	14,280	17,103	18,300	18,300	18,300	19,000
Local surface water	3,237	2,500	2,500	2,500	2,500	2,500
Recycled Water[1]	73	100	750	1,000	1,500	1,500
Total	**21,061**	**21,703**	**23,288**	**24,193**	**24,752**	**26,000**

1. Recycled water includes only in-City supplies as a combination of effluent from the PWRP and non-potable water pumped from the Spadra Groundwater Basin.

4.3 Groundwater

The City produces groundwater from three groundwater basins: Chino Basin, Six Basins and Spadra Basin. Groundwater pumping within Chino and Six Basins is bound by established groundwater rights. The Spadra Basin is not adjudicated and water rights in this basin have not been established. However, limited natural recharge of the basin and water quality constraints restricts the Spadra Basin's ability to support additional wells. Figure 4-2 shows the location of these groundwater basins. This section provides a description of each basin, as well as historic and projected pumping.

Figure 4-2: Groundwater Basins and Facilities



4.3.1 Groundwater Basin Descriptions

Below are descriptions for each of the basins from which the City pumps water, including information on basin adjudication, basin management, City pumping rights, and basin physical descriptions.

Chino Basin

The Chino Basin is an alluvial groundwater basin that extends from the San Jose Fault and San Gabriel Mountains on the north to the Santa Ana River on the south and from the Chino Hills on the west to the Rialto Colton Fault and Jurupa Mountains on the east. The City pumps from the upper and lower aquifer systems within the basin. The upper aquifer system is unconfined to semi-confined and yields more water but is subject to water quality impacts from surface sources. The deeper aquifer system is confined and yields less water due to the higher percentage of silt and clay.

The Chino Basin is managed by the Chino Basin Watermaster, which is responsible for monitoring groundwater basin production, levels, quality and water rights. Groundwater levels and quality are monitored through the Groundwater Level Monitoring Program which uses 700 wells to assist in the Watermaster's monitoring program for hydraulic control, land subsidence and desalter impacts. The Chino Basin Watermaster also regularly monitors groundwater production at all active wells, in addition to monitoring surface water quantity and quality.

There are several programs in place to maintain the groundwater levels and production in the Chino Basin. (Chino Basin Watermaster, 2011)

- **The Optimum Basin Management Program** consists of hundreds of specific actions designed to resolve basin water supply and quality challenges.
- **The Chino Basin Groundwater Recharge Program** is a comprehensive, ongoing program to enhance water supply reliability and improve the groundwater quality in local drinking water wells throughout the Chino basin by increasing the recharge of stormwater, imported water and recycled water.
- **The 2010 Recharge Master Plan Update** will guide the development of new sources of water that are affordable, reliable and under local control.
- **The Dry Year Yield Program** is a conjunctive use program which gives MWD the right to store groundwater in the Basin in exchange for paying the costs of developing the facilities to deliver that water.

The Chino Basin Judgment defines the available rights for the City to pump and can be found in Appendix D. The City's share of the Operational Safe Yield (OSY) is fixed at 20.5% or 11,216 afy as determined in the Judgment. The initial OSY is set at 54,834 afy. Occasionally in years with higher precipitation, Pomona is eligible for up to 2,454 AF of water rights associated with the Chino Basin enhanced stormwater capture program and potentially up to 6,709 af of water rights associated with an early transfer of Agricultural Pool pumping rights related to the reduction in agricultural pumping in the basin. Finally, the City claims approximately 220 afy of additional rights as a result of the Peace II negotiation process which is in place from 2007 to 2017. In 2010, the City's total water right was 17,567 af, however these rights are variable as described above.

In the past, groundwater levels have been studied to track a groundwater depression in the City of Montclair northeast of the City's well fields in the Chino Basin. While increased artificial recharge and decreased pumping since 2005 have allowed groundwater levels to recover, future groundwater level trends will depend on the balance of recharge and discharge in this area allowing for mitigation of the depression. Current static groundwater levels range from approximately 200 to 450 ft below ground surface (bgs). (RMC, 2010)

Six Basins

Six Basins is managed by the Six Basins Watermaster, and consists of six individual groundwater basins within the jurisdiction of the Six Basins adjudication (included as Appendix E). The City has production facilities in three of the six basins: Pomona, Lower Claremont Heights, and Upper Claremont Heights basins. Aquifers in the basins located at the base of the San Gabriel Mountains (i.e. the Upper and Lower Claremont Heights Basins) tend to be relatively permeable and unconfined. Two aquifers have been identified in the Pomona Basin (further from the base of the San Gabriel Mountains): an upper unconfined aquifer and a lower semi-confined aquifer. Although the boundary between the upper and lower aquifer is vague, most of the groundwater production in the Pomona Basin is believed to be from the lower aquifer (PBS&J, 2009).

Groundwater production, levels and quality are monitored by the Six Basins Watermaster. Two spreading basins used for the spreading of imported and surplus local surface water within the Six Basins (Thompson Creek and San Antonio Creek Spreading Grounds) are owned and maintained by the Pomona Valley Protective Association (PVPA). The Pomona Spreading Grounds, located in the City of Claremont, is owned and maintained by the City. The Six Basins Watermaster shares in the maintenance cost for work that occurs in the San Antonio Spreading Grounds and participates in two conjunctive use programs:

- San Antonio Spreading Grounds Conjunctive Use Project is managed in partnership with TVMWD, Six Basins Watermaster, and the PVPA at the San Antonio Spreading Grounds northeast of the City. Through this program, 1,000 afy of imported water to a maximum of 3,000 afy can be stored for subsequent use.

- Live Oak Conjunctive Use Project is also a partnership between TVMWD, Los Angeles County Department of Public Works, and MWD to spread imported water at the Live Oak Spreading Grounds northwest of the City. The City receives no direct benefit from this project.

The safe yield of Six Basins was originally established as 19,300 afy. The annual OSY of Six Basins is determined based on groundwater level conditions within the individual basins and can vary widely (16,000 to 24,500 afy). The City's allocation of the OSY is 20.8%. On average the OSY is 19,300 AF, with the City's allocation being 4,014 AF. In 2009 the OSY of Six Basins was 17,500 AF, with the City's allocation set at approximately 3,640 AF. The City can also carry over unused water rights, water spread and storage water with certain restrictions.

Groundwater levels in the Pomona Basin ranged from approximately 230 ft bgs in the north to 2 ft bgs in wells along the San Jose Fault to the south. Levels are variable depending on precipitation and recharge at spreading grounds. Significant rainfall coupled with large amounts of spreading will drastically impact groundwater levels in the basin. In 2005, water levels throughout the Six Basins Area, except in the lower portion of the Pomona Basin, were low but steady as a result of average to below average rainfall since 1999 and low spreading at Six Basins spreading grounds. Levels are expected to remain steady through management by the Six Basins Watermaster. (Six Basins Watermaster, 2010)

Spadra Basin

The Spadra Basin is an alluvial groundwater basin located in the western portion of the City. The safe yield of this basin has been estimated to be approximately 1,500 afy although urbanization of the area and lining of San Jose Creek have limited the amount of natural and return flow recharge to the aquifer system. The Spadra Basin has not been adjudicated and there is no formal groundwater management structure in place for the area. The basin is not considered to be in overdraft. The wells the City currently has in place in this basin have a capacity of 1 mgd. Limited natural recharge of the basin and water quality constraints restricts the Spadra Basin's ability to support additional wells.

Though supply from this basin has primarily been used to supplement the recycled water system, there is potential for the use of Spadra basin as a potable source of supply. In 2011, the City restarted a well that yielded 150 af of potable over a three month period, however, groundwater quality has been variable.

4.3.2 Historical Pumping

The historical volume of water pumped by the City is shown in Table 4-3. Groundwater supplies typically make up over half of the City's total supply, and have been sufficient to help the City in meeting demand in combination with the City's other supplies. The City has historically obtained a majority of its groundwater from the Chino Basin, which is expected given that the City has its highest level of water rights in that basin.

The City has historically pumped close to its allocation of Six Basins groundwater, ranging from 3,552 to 5,600 afy.

Table 4-3: Historical Groundwater Pumped (af)

Basin name(s)	Metered or Unmetered	2005	2006	2007	2008	2009
Potable						
Six Basins	Metered	3,552	5,600	4,575	3,875	3,613
Chino Basin	Metered	13,232	9,539	13,209	13,046	13,098
Total Potable		**16,784**	**15,139**	**17,784**	**16,921**	**16,711**
Non-Potable						
Spadra Basin	Metered	711	533	554	293	155
Total Non-Potable		**711**	**533**	**554**	**293**	**155**
Total groundwater pumped		**17,495**	**15,672**	**18,338**	**17,214**	**16,866**
Groundwater as a percent of total water supply		**60%**	**52%**	**66%**	**67%**	**75%**

4.3.3 Current and Projected Pumping

Current and projected pumping is expected to remain a primary source of water supply for the City, and is shown in Table 4-4. Pumping in Spadra Basin (if water quality remains constant) and Chino Basin is expected to increase given that the City's groundwater rights have traditionally not been fully pumped. Six Basins pumping is not projected to increase above the City's average water right of approximately 4,000 afy, unless another well or wells are developed and groundwater replenishment projects are expanded.

System expansions in the Chino Basin are expected to include two additional wells to increase production by 700 afy, pending funding. Additionally, the City is planning construction of a perchlorate treatment plant in the Chino Basin that will increase production by 2,900 afy by further treating previously unusable supplies. Projected pumping is not expected to be limited by quantity issues as the City is expecting to remain within their current water rights.

The Spadra Basin has historically been pumped to supplement non-potable supplies, and for the purposes of this UWMP it is assumed that this usage will continue in the future. As mentioned previously, there is potential for Spadra Basin to be used as a potable source of water. The City has recently restarted a well in Spadra Basin which has yielded water meeting drinking water requirements. Future water quality, however, remains variable and unpredictable.

Table 4-4: Current and Projected Groundwater Pumping (af)

Basin name(s)	2010	2015	2020	2025	2030	2035
Potable						
Six Basins	4,001	4,000	4,000	4,000	4,000	4,000
Chino Basin	10,279	13,103	14,300	14,300	14,300	15,000
Total Potable	**14,280**	**17,103**	**18,300**	**18,300**	**18,300**	**19,000**
Non-Potable						
Spadra Basin	10	20	100	150	200	200
Total Non-Potable	**10**	**20**	**100**	**150**	**200**	**200**
Total groundwater pumped	**14,290**	**17,123**	**18,400**	**18,450**	**18,500**	**19,200**
Groundwater as a percent of total water supply	**68%**	**79%**	**79%**	**76%**	**75%**	**74%**

4.4 Surface Water

The City is situated near the base of the San Antonio Canyon and Evey Canyon watersheds that discharge runoff from the San Gabriel Mountains into local spreading grounds. The City has rights to 40% of the first 10 mgd (10,000 afy) of flow from San Antonio Creek. The City has the infrastructure to produce up to 4 mgd (4,000 afy) of that local surface water for supply.

The City's local surface water facilities include a intake/weir structure in San Antonio Canyon, the Pedley Filtration Plant (PFP) (owned by Pomona but located in the City of Claremont as shown in Figure 2-1), and the Canon Waterline connecting San Antonio and Evey Canyons with the PFP. The intake/weir structure in San Antonio Canyon apportions flow between San Antonio Water Company and the City. The Canon pipeline begins at the intake/weir structure, collects additional surface water at Evey Canyon, and supplies PFP with raw surface water for treatment. At PFP, the pipeline discharges into a diversion structure which conveys all instantaneous flows less than or equal to 4 mgd into the treatment plant; any excess flow above 4 mgd is diverted to a large spreading/infiltration basin located immediately adjacent to PFP. Water not diverted from San Antonio Creek helps to recharge the Six Basins Aquifer.

Local surface water not treated at the PFP is diverted to the nearby Pomona Spreading Grounds for recharge of Six Basins – resulting in a spreading credit for the City.

4.4.1 Historical Local Surface Water Production

PFP was originally constructed and permitted in 1962 for a capacity of 5 mgd, but filter backwash improvements in 1997 required the facility to be downgraded to a capacity of 4 mgd. The City has treated a total annual average flow of 2,000 afy of local raw surface water over the past ten years from San Antonio Creek.

The maximum observed instantaneous surface water flow ever received at PFP is between 8 and 9 mgd during rare wintertime rainfall events. PFP is typically shut down at flows below 400 gpm (0.58 mgd). Based on the peak flows of 8-9 mgd, there is a significant volume of untreated surface water that is recharged at the recharge/spreading basin adjacent to PFP. Historical production for local surface water is shown in Table 4-5.

The City has historically recharged an average of 500 afy of local surface water at the Pomona Spreading Grounds. Historical recharge at the spreading grounds is shown in also shown Table 4-5. The total water production from PFP and spreading at the Pomona Spreading Grounds is the total amount of local surface water available to the City from San Antonio Creek.

Table 4-5: Historical Local Surface Water Supply (af)

	2005	2006	2007	2008	2009
Local Surface Water Treated at Pedley Filtration Plant	2,755	3,053	1,676	2,683	3,121
Local Surface Water Spread at Pomona Spreading Grounds	1,031	474	110	433	314
Total Local Surface Water	**3,786**	**3,527**	**1,786**	**3,116**	**3,435**

4.4.2 Current and Projected Local Surface Water Production

Table 4-6 shows current and projected local surface water supply production from PFP for normal years. It is assumed that the City will continue to have an average of 2,000 afy of production from the PFP, and will also treat 500 afy of local surface water historically sent to the spreading grounds to equal 2,500 afy of local surface water production. The City can potentially further increase production at the PFP to 4,000 afy by purchasing 1,500 afy of untreated imported water from TVMWD (in–lieu of current treated water purchases), and treating the raw imported water in addition to the local surface water. The current facilities, however, would need to be updated to effectively treat imported supplies. The expanded production at the PFP will be possible through implementation of seasonal storage as well as some treatment upgrades. These projects will be phased beginning in 2025.

Table 4-6: Current and Projected Local Surface Water Supply (af)

	2010	2015	2020	2025	2030	2035
Local Surface Water Treated at Pedley Filtration Plant	3,237[1]	2,500	2,500	2,500	2,500	2,500

1. 2010 is considered a wetter than average year and the volume here reflects actual surface water flows that were used by the City. Subsequent years reflect average condition projections.

4.5 Imported Water

The City obtains imported water supply from TVMWD which receives its supply as a member agency to MWD. Imported supplies are treated at MWD's Weymouth Treatment Plant (Weymouth WTP) and TVMWD's Miramar Treatment Plant (Miramar WTP) before reaching the City.

Imported water is introduced to the City's distribution system through four imported water supply connections which have the capability of continuously supplying imported water to the City.

4.5.1 Historical

Historical imported water deliveries for the City are shown in Table 4-7. The average annual volume of treated imported water delivered to the City from 2005 to 2009 was 3,341 afy. The 2009 volume received was significantly less than this five-year average. Demand decreased significantly in 2009 due to the extended drought, resulting conservation measures imposed by the City and MWD, and an economic downturn followed by a wet 2009-2010 winter. With this decrease in demand, the City decreased its use of imported water, relying more on groundwater supplies where production remained relatively steady between 2008 and 2009.

Table 4-7: Historical Imported Water Deliveries (af)

	2005	2006	2007	2008	2009
TVMWD	5,866	8,465	7,648	5,895	2,525

4.5.2 Current and Projected

Current and projected imported water deliveries from TVMWD are shown in Table 4-8. Imported water levels are expected to fluctuate according to the further development of local supplies and changes in demand, but will ultimately reach an average of 3,000 afy. As discussed in the local surface water section, a portion of the imported supply is anticipated to be untreated (1,500 afy), for treatment at the PFP.

According to MWD's recently released draft 2010 RUWMP, there will be sufficient supply to meet MWD's overall system demand through 2035; so it can be assumed that the City's projected imported water supplies will be reliably met every year. Reliability of imported water supplies will be explored in more detail in Section 5: Water Reliability.

Table 4-8: Current and Projected Imported Water Deliveries (af)

	2010	2015	2020	2025	2030	2035
TVMWD	3,471	2,000	1,738	2,393	2,452	3,000

4.6 Recycled Water

Recycled water is wholesaled to the City by the SDLAC from the PWRP. The City's recycled water distribution system was built to serve customers both inside and outside of the City's service area and also serves non-potable supply pumped by the City from Spadra Basin. Since that time, most of the recycled water customers within the City's service area have left the area. The City prepared the RWMP in November 2009 to evaluate potential new recycled water customers to be added to the City's existing recycled water system, as well as determine future system expansions. Since preparation of the RWMP, some of the new potential customers have also left the area. As part of the City's IWSP process, the recycled water market was re-examined and a modified next-phase non-potable recycled water system project was developed, pending additional funding.

4.6.1 Wastewater

The PWRP treats approximately 13 mgd of influent flow to Title 22 standards through primary, secondary and tertiary treatment. Effluent from primary and secondary processes is sent to the Joint Water Pollution Control Plant (also owned by SDLAC) for further treatment. Disinfected tertiary effluent is sent to contracting agencies, with any unused tertiary influent diverted into San Jose Creek which drains to the San Gabriel River. The tertiary effluent is suitable for all approved Title 22 uses identified in the RWMP.

The 2009 RWMP explored the projected supply from the PWRP to ensure supply would be available for the recommended recycled water system. The tertiary effluent capacity of the PWRP is 15 mgd, however, flows vary from 4 mgd to 15 mgd with average production at 9 mgd. The City is currently contracted for the right to purchase and sell two-thirds of the plant's effluent flow. Based on the average plant production, this equates to an average of 6 mgd of effluent flow available to the City. The remaining one-third of plant flow is fully contracted to Walnut Valley Water District.

4.6.2 Non-Potable Groundwater

Section 4.3 discussed the use of non-potable supply pumped from the Spadra Basin to supplement the recycled water flows from the PWRP. Since these supplies are treated as identical to non-potable PWRP supplies, they have been included in the recycled water supply values shown in Table 4-9 and Table 4-10.

4.6.3 Historical

Historically, recycled water use within the City's service area has been used mainly for irrigation, with some commercial and industrial users. Table 4-9 shows that over the past five years recycled water use has decreased within the City due to key industrial users going out of business or leaving the city. Exports have remained relatively steady between 2005 and 2009.

Table 4-9: Historical Recycled Water Use[1] (af)

User type	2005	2006	2007	2008	2009
Landscape irrigation within City	99	87	82	33	17.7
Commercial/Industrial Processes within City	3,440	3,340	515	0	0.3
In-City Total	**3,539**	**3,427**	**597**	**33**	**18**
Recycled Water Exports	2,059	2,015	2,307	2,200	2,059
Export Total	**2,059**	**2,015**	**2,307**	**2,200**	**2,059**
Recycled Water Total	**5,598**	**5,442**	**2,904**	**2,233**	**2,077**

1. Recycled water is a combination of effluent from the PWRP and non-potable water pumped from the Spadra Groundwater Basin.

4.6.4 Current and Projected

The 2009 RWMP identified a number of potential recycled water customers, and several pipeline alternatives. The RWMP included landscape irrigation at a variety of site types, commercial uses, and industrial processes. The 2011 IWSP updated the market assessment but used the distribution alternatives from the 2009 RWMP to create a modified next phase recycled water project. The project recommended in the IWSP would serve an additional 1,500 afy to meet City customer demand (within the City's service area) that could be phased in over the next 20 years.

The peak customer demand for customers in the recommended system would not exceed the 6 mgd of tertiary effluent available to the City. The SDLAC does not foresee any issues with providing this volume or tertiary flow to the City in the future. Additional non-potable water is available from the Spadra groundwater basin to supplement the recycled water supply (up to 1 mgd). This system would serve non-potable uses primarily in the southwestern portion of the City, and continue to export additional supplies.

Since preparation of the 2005 UWMP and 2009 RWMP, some potential customers have left the area and recycled water use has decreased. The 2005 projections for 2010 recycled water use was 6,000 afy while actual 2010 recycled water use is 1,573 afy (including exports).

The 2011 IWSP determined that further expansion of the current recycled water system is both supply and demand feasible. However, the implementation of the proposed recycled water project will be contingent upon the ability to secure up-front funding and will be balanced against the conservation measures also looking to be implemented to meet the 2009 Water Conservation Act targets described in Section 3.

Table 4-10: Current and Projected Recycled Water Use[1] (af)

User type	Description	Feasibility	2010	2015	2020	2025	2030	2035
Landscape irrigation	Land application at parks, schools, highways on/off ramps	Technically and economically feasible	73	100	714	964	1,092	1,092
Commercial/ Industrial Process	Materials manufacturing, linen service	Technically and economically feasible	0	0	36	36	408	408
In-City Total			**73**	**100**	**750**	**1,000**	**1,500**	**1,500**
Exports	Exports to non-City customers	Technically and economically feasible	1,500	2,095	2,095	2,095	2,095	2,095
Export Total			**1,500**	**2,095**	**2,095**	**2,095**	**2,095**	**2,095**
Recycled Water Total			**1,573**	**2,195**	**2,845**	**3,095**	**3,595**	**3,595**

1. Recycled water is a combination of effluent from the PWRP and non-potable water pumped from the Spadra Groundwater Basin.

4.6.5 Encouraging and Optimizing Recycled Water Use

The City currently provides financial incentives for the use of recycled water. Specifically, the cost of recycled water to City customers is approximately $224 per af - or $0.50 per hcf less than the cost of potable water. It is predicted that this financial incentive will be sufficient to encourage the use of recycled water within the City's service area, which is reflected in Table 4-11. The City also plans to secure funding from federal, state and local agencies for the expansion of the existing recycled water system.

Table 4-11: Methods to Encourage Recycled Water Use (af)

Actions	Projected Results				
	2015	2020	2025	2030	2035
Financial Incentives	100	750	1,000	1,500	1,500
Total	100	750	1,000	1,500	1,500

4.7 Desalination Opportunities

The City is not located near, nor does it have access to any surface or groundwater areas that could be desalinated for use so there are no plans for desalination opportunities.

4.8 Transfer Opportunities

The City currently transfers and exchanges water on a short term, opportunistic and emergency basis with neighboring agencies. These exchanges have historically involved the transfer of groundwater rights to neighboring agencies and recycled water exports. In the future it is predicted that the City will have surplus groundwater and local surface water rights that can be transferred to neighboring agencies on a short, mid and possibly longer- term basis.

Table 4-12: Transfer and Exchange Opportunities

Transfer agency	Transfer or exchange	Short term or long term	Proposed Volume
City of Pomona to Walnut Valley WD	Treated Groundwater	TBD	TBD
City of Pomona to Rowland WD	Treated Groundwater	TBD	TBD
City of Pomona to Cucamonga Valley WD	Local Surface Water transfer	TBD	TBD
City of Pomona to City of Upland	Local Surface Water transfer	TBD	TBD

Section 5 Water Reliability

The City's supply reliability can be impacted by many factors including changes in the availability of supplies, due to climatic or infrastructure changes, as well as the ability to use those supplies more efficiently in both average and dry periods. These factors can result in immediate (facility failures), near-term (SWP limitations), or long-term (climate change) impacts to reliability and must therefore be considered in future planning.

The impacts of these factors on reliability increase under single dry and multiple dry year hydrologic patterns. Historically, dry years result in increases in demands as well as decreases in surface supplies that can then result in shortages if not managed effectively. Although not all shortages can be prevented, the City's overall goal to further diversify its supply portfolio is the most important step toward improving the immediate, near- and long-term reliability of supplies. If shortages do occur, the City has completed comprehensive water shortage contingency planning to best plan for and manage these situations.

5.1 Potential Impacts to Reliability

Reliability within the City's service area is a composite of the reliability of each source of supply. Table 5-1 summarizes the factors that impact each resource's supply reliability. Of all of the supplies shown in Table 5-1, imported supply has the greatest number of factors that will impact its reliability. It is because of this that the City is moving forward with its plans to further develop local supplies. Further explanations of each impact category on reliability are described in the subsections below.

Table 5-1: Factors Resulting in Inconsistency of Supply

Water supply sources	Legal	Environmental	Water quality	Climatic
Imported Water	X	X	X	X
Groundwater	X		X	X
Local Surface Water			X	X
Recycled Water			X	

5.1.1 Imported Water Reliability

Given that TVMWD is an MWD member agency, imported water from TVMWD can be expected to be affected by the same factors affecting MWD, in particular those involving the State Water Project and the Colorado River. The factors affecting reliability for imported water supplies include legal, environmental, water quality and climactic. The legal factor includes policies and contracts on the State Water Project with DWR and on the Colorado River system with the United States Department of the Interior, and other Colorado River basin states. Legal actions can impact supplies from these two sources in various ways as experienced recently with a federal district court decision limiting State Water Project supplies due to perceived impacts on specific fish in the Delta estuary. This example also shows how environmental factors such as endangered species, their habitat, and other related concerns must be taken into account in decisions that can curtail supplies.

Likewise, the quality of these imported source waters can impact availability of supplies due to treatment, remediation or otherwise to ensure drinking water standards are fully met. In terms of impacts from climatic factors, imported water supplies rely heavily on runoff from rainfall and snowpack in the State Water Project and Colorado River watersheds. If the amount of snowpack and rainfall changes significantly in these two water supply systems, the quantity of water in any given year is subject to fluctuations. With the uncertainty of the impacts from long-term climate changes, imported water supplies may become more or less reliable in the future, depending on the availability of storage.

5.1.2 Groundwater Reliability

Groundwater is traditionally considered a highly reliable supply since it is not immediately susceptible to changes in climate and surface flows. However, the two main factors that impact the reliability of groundwater supplies are legal and water quality.

Because the two main groundwater basins from which the City pumps are adjudicated, pumping rights are established for the City. However, changes to basin operation including allocation of pumping rights, opportunities to utilize the basin in other ways including storage, remediation of contaminated plumes, and pumping expansion for further extraction, are all considered legal impacts because it would require addressing the existing court-ordered judgment.

The water quality of groundwater supplies is a factor in its reliability because the water needs to meet drinking water standards and sometimes requires treatment at each pumping location. This issue is discussed in more detail in Section 5.4.

5.1.3 Local Surface Water Reliability

Local surface water is considered the most variable supply source in terms of reliability as it is the most susceptible to annual climatic changes. The City receives a historical average of 3,400 AFY of flow from the San Antonio Creek. However, the flow is highly variable given changes in local precipitation. The majority of flow occurs during winter storms and since there are no reservoirs before it is diverted to the City, there is no ability to store the excess flows during precipitation events. Conversely in dry years, there can be decreases in supply of about 63%. Water quality can also affect the reliability of local surface water such as high turbidity levels during extreme storm events that cause the City's local surface water treatment plant to be shut down.

5.1.4 Recycled Water Reliability

Recycled water is considered to have one of the highest reliabilities of any supply given that there is a consistent source of supply for treatment. The City receives two thirds of the total recycled water supply produced at the SDLAC PWRP. Although this is slightly variable depending on the sewer discharges that flow to PWRP, the City has no plans to completely maximize the use of that supply and is therefore not in jeopardy of supply shortfall. The amount of recycled water available to the City may even increase in the future as water and sewer connections increase, however, SDLAC can and does direct flows toward other facilities, at their discretion.

5.2 Projected Supply Reliability

The City has experienced several examples of single dry and multiple dry year cycles within its historical hydrologic record. For the purposes of this UWMP, the City will use the years called out in Table 5-2 as the best representative examples of single and multiple dry year impacts on normal supply and demand projections. These years were selected based upon examining the historical record of precipitation and resulting San Antonio Creek flows from which the City receives its local surface water supply.

The supply projections shown in Table 5-3 apply the anticipated impacts of these hydrologies over the next few years. It is assumed that local surface water and imported water will be the only water supplies affected by single and multiple dry years. Local surface water flows have historically decreased significantly during dry years, decreasing local surface water production by as much as half of average production. During the driest single year (1997), local surface water production decreased by 50%; during the three driest multiple dry years (2002-2004), local surface water production decreased by an average of 16% per year.

For imported supplies, TVMWD has estimated in its draft 2010 Regional UWMP that in the future, imported water supplied during single dry years will be decreased by approximately 0.8%, and during multiple dry years will be decreased by 0.4% each year.

Given that the City has substantial groundwater rights that are not currently being maximized, it can reasonably assume that any annual decreases in surface supplies could be offset through increases in groundwater pumping in those years with proper treatment facilities.

Recycled water supplies are considered constant and would not decrease under dry year conditions nor be able to be increased temporarily to accommodate the decrease in surface supplies.

Table 5-2: Basis of Water Year Data

Water Year Type	Base Year(s)
Average Water Year	1980-2009
Single Dry Water Year	1997
Multiple Dry Water Years	2002-2004

Table 5-3: Current Water Supply Reliability (af)

Water supply sources	Average / Normal Water Year Supply	Single Dry Water Year	Multiple Dry Water Year Supply		
			2010	2011	2012
Imported Water	3,000	2,978	2,988	2,976	2,964
Groundwater	18,300	18,300	18,300	18,300	18,300
Local Surface Water	2,500	1,246	2,100	1,700	1,300
Recycled Water	1,500	1,573	1,573	1,573	1,573
Total	**25,300**	**24,097**	**24,961**	**24,549**	**24,137**
% of Normal Year:		**95%**	**99%**	**97%**	**95%**

Table 5-4: Projected Average Water Supply and Demand (af)

	2015	2020	2025	2030	2035
Imported Water	2,000	1,738	2,393	2,452	3,000
Groundwater	17,103	18,300	18,300	18,300	19,000
Local Surface Water	2,500	2,500	2,500	2,500	2,500
Recycled Water	100	750	1,000	1,500	1,500
Total Supply	**21,703**	**23,288**	**24,193**	**24,752**	**26,000**
Total Demand[1]	**21,703**	**23,288**	**24,193**	**24,752**	**26,000**
Difference	**0**	**0**	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

5.2.1 Single Dry Year

Table 5-5 shows the projected reliability of water supplies under single dry year conditions for five year increments between 2015 and 2035.

The supplies reflect a decrease in availability of imported and surface water. The overall demand is estimated to increase by 5% over average year to account for increases in irrigation needs. This projected increase was determined by examining the historical increase in City production during dry-year conditions. The extra demand can readily be met through existing and planned groundwater supply development sources and facilities available to the City.

Table 5-5: Projected Single Dry Year Water Supply and Demand (af)

	2015	2020	2025	2030	2035
Imported Water	2,978	2,978	2,978	2,978	2,978
Groundwater	18,464	19,478	20,179	20,266	21,576
Local Surface Water	1,246	1,246	1,246	1,246	1,246
Recycled Water	100	750	1,000	1,500	1,500
Total Supply	**22,788**	**24,452**	**25,403**	**25,990**	**27,300**
Total Demand[1]	**22,788**	**24,452**	**25,403**	**25,990**	**27,300**
Difference	**0**	**0**	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

5.2.2 Multiple Dry Years

Table 5-6 through Table 5-10 show the projected reliability of supplies under multiple (three) dry year conditions for five year increments between 2010 and 2035. It is assumed in all tables that demand will increase by 5% over the average year in the first year of multiple dry year conditions, then remain steady. This projected change in demand was determined by examining the effects of previous multiple dry-year conditions to production.

As under single dry year conditions, it is assumed that groundwater supplies can be used to meet any annual increase in demand (coupled with the increase in conservation measures that would commence during the second and third year of a significant multiple-dry sequence). As a result, there are no anticipated shortages under any dry year scenarios. These tables show that the City can provide reliable water supplies under both the single driest year and multiple dry year hydrologies.

Table 5-6: Projected Multiple Dry-Year Water Supply and Demand (2013-2015) (af)

	2015	2016	2017
Imported Water	2,988	2,976	2,964
Groundwater	18,364	18,376	18,388
Local Surface Water	1,336	1,336	1,336
Recycled Water	100	100	100
Supply totals	**22,788**	**22,788**	**22,788**
Demand totals[1]	**22,788**	**22,788**	**22,788**
Difference	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

Table 5-7: Projected Multiple Dry-Year Water Supply and Demand (2020-2022) (af)

	2020	2021	2022
Imported Water	2,988	2,976	2,964
Groundwater	19,378	19,390	19,402
Local Surface Water	1,336	1,336	1,336
Recycled Water	750	750	750
Supply totals	**24,452**	**24,452**	**24,452**
Demand totals[1]	**24,452**	**24,452**	**24,452**
Difference	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

Table 5-8: Projected Multiple Dry-Year Water Supply and Demand (2025-2027) (af)

	2025	2026	2027
Imported Water	2,988	2,976	2,964
Groundwater	20,079	20,091	20,103
Local Surface Water	1,336	1,336	1,336
Recycled Water	1,000	1,000	1,000
Supply totals	**25,403**	**25,403**	**25,403**
Demand totals[1]	**25,403**	**25,403**	**25,403**
Difference	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

Table 5-9: Projected Multiple Dry-Year Water Supply and Demand (2030-2032) (af)

	2030	2031	2032
Imported Water	2,988	2,976	2,964
Groundwater	20,166	20,178	20,190
Local Surface Water	1,336	1,336	1,336
Recycled Water	1,500	1,500	1,500
Supply totals	**25,990**	**25,990**	**25,990**
Demand totals[1]	**25,990**	**25,990**	**25,990**
Difference	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

Table 5-10: Projected Multiple Dry-Year Water Supply and Demand (2035-2037) (af)

	2035	2036	2037
Imported Water	2,988	2,976	2,964
Groundwater	21,476	21,488	21,500
Local Surface Water	1,336	1,336	1,336
Recycled Water	1,500	1,500	1,500
Supply totals	**27,300**	**27,300**	**27,300**
Demand totals[1]	**27,300**	**27,300**	**27,300**
Difference	**0**	**0**	**0**

1. Demand assumes implementation of conservation programs discussed in Section 6.

5.3 Water Quality

Water quality is an important factor in determining overall supply reliability; if adequate drinking water quality cannot be maintained, then the supply will no longer be available for use. The City is currently able to effectively meet all drinking water standards for each of its supplies. However, the City also understands that the quality of supply sources can change over time and is therefore constantly working to anticipate and mitigate those changes. The City's regular monitoring of its water supply quality and understanding of current and potential regulations will allow it to respond readily to any quality induced reliability issues.

5.3.1 Groundwater Quality

The City's groundwater supplies originate from three separate hydrogeologic basins – each with its own quality issues and treatment strategies. All of the City's wells and treatment facilities are subject to regular water quality sampling mandated by the CDPH, and the City is well-equipped to respond to a variety of constituents present in its supply sources that can affect water quality.

Chino Basin

A majority of the groundwater pumped by the City from the Chino Basin currently undergoes blending and anion exchange at the Anion Exchange Plant (AEP) to reduce nitrate concentrations. Additionally, some wells receive wellhead treatment through disinfection. High perchlorate levels have required the shutdown of some wells in the past; however, the City is currently constructing a new perchlorate treatment plant adjacent to the AEP facility to maximize the use of the City's existing wells in the Chino Basin.

Six Basins

The City pumps groundwater from three basins within the Six Basins – Pomona, Lower Claremont and Upper Claremont basins. A majority of the groundwater pumped by the City from the Pomona Basin is treated through a combination of blending and treatment plants for perchlorate, nitrate and VOCs. The Harrison Groundwater Treatment Facility treats water from Well 37 for nitrate using ion exchange. The 10 and Towne Groundwater Treatment Plant treats three wells for VOCs through air stripping, as does the Well 3 air stripping facility. Perchlorate and nitrate levels within the Six Basins are reduced through blending. There are currently no water quality issues with water pumped from Lower Claremont or Upper Claremont basins.

Spadra Basin

Groundwater pumped from the Spadra Basin is primarily used to supplement recycled water flows to meet non-potable demand. This water is untreated and meets Title 22 standards. The City is currently investigating areas of recently improved water quality in Spadra Basin for potential longer-term potable use.

Future Planning

The City is currently tracking potential drinking water regulations for Chromium VI, VOCs and other contaminants. Should regulations creating such a maximum contaminant level (MCL) impact groundwater production, the City will determine the appropriate treatment actions to take to maintain groundwater production levels. Additionally, the City is exploring the potential for additional nitrate, perchlorate and VOC treatment in the Six Basins area.

5.3.2 Local Surface Water Quality

Surface water from San Antonio Creek is generally of a very high quality. The PFP, where local surface water is treated, is in continuous operation throughout the year except during periods when the raw water turbidity is too high for the filters to meet the permitted finished water turbidity requirement of 10 NTU. This is typically during extreme wet weather events and is not common. It is estimated that the PFP is shut down an average of two weeks per year as the result of high raw water turbidity during exceptionally rainy periods. The flows are instead routed to the adjacent Pomona Spreading Grounds for groundwater recharge. The annual wet-weather shutdown time varies from year to year depending on the amount of rainfall received and the intensity of the rainfall events. As turbidity of San Antonio Creek is not expected to increase in the future, supply projections for local surface water are not expected to be impacted.

5.3.3 Imported Water Quality

The City does not currently experience and does not foresee issues with its imported water quality as it receives treated water from TVMWD. In the future the City is considering taking raw imported supplies and treating them at an upgraded PFP but no formal designs or dates have been determined, pending funding of the PFP Upgrade Project.

5.3.4 Recycled Water Quality

Recycled water received by the City from the PWRP is currently treated to Title 22 standards, and therefore is used only for non-potable uses. It is expected that the quality of these flows will be maintained by SDLAC who owns and operates PWRP.

5.4 Drought and Water Shortage Contingency Planning

The City has in place Ordinance No. 4122 to establish a water conservation program and water supply shortage regulations, and can be found in Appendix F. This ordinance puts into place a series of permanent water conservation requirements, as well as defines conservation requirements for three levels of water supply shortage which are defined in Table 5-11.

Table 5-11: Water Shortage Contingency Stages

Stage No.	Water Supply Conditions	% Shortage
Level 1 Water Supply Shortage	Level 1 Water Supply Shortage can be declared by the City if any combination of events or factors threatens the adequacy of foreseeable water supply to customers. Qualifying factors include: • Time of year • Local rainfall • MWD's/TVMWD's Water Supply Allocation Plans • State Water Project Allocations • Groundwater Conjunctive Use (Dry Year Yield) program • OSY determined by Chino Basin or Six Basins Watermasters • Natural disasters that cause damage to the water supply or water distribution system	10%
Level 2 Water Supply Shortage	Level 2 Water Supply Shortages exists when the City determines that due to factors outlined in Level 1 Water Supply Shortages and a water supply shortage exists.	11%-30%
Level 3 Water Supply Shortage	Level 3 Water Supply Shortage exists when the City declares a water shortage emergency due to factors outlined in Level 1 Water Supply Shortages.	30% or more

5.4.1 Mandatory Prohibitions and Consumption Reduction

The City's water conservation and water supply shortage ordinance has put into place a series of permanent prohibitions listed in Table 5-12, in order to ensure a reliable and sustainable minimum supply of water for the public health, safety and welfare. Additionally, in response to recent drought conditions and the uncertainty of imported water supplies, the City has created the water supply shortage prohibitions listed in Table 5-13.

The City will measure and determine actual water savings stemming from these prohibitions and consumption reduction methods will be measured through the use of meter readings.

Table 5-12: Permanent Prohibitions and Consumption Reduction Methods

Prohibitions/Consumption Reduction Method
Limits on Water Hours to between 6pm and 10am except by use of a hand-held bucket or hand-held hose equipped with a self-closing water shut-off nozzle.
Limits on watering duration to no more than 15 minutes water per day per station (not including landscape irrigation systems that exclusively use very low-flow drip type irrigation systems and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standards.
No excessive water flow or runoff.
No washing down hard or paved surfaces except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket, a hand-held hose with a self-closing shut-off device, or a low volume high pressure broom.
Obligation to fix leaks, breaks, or malfunctions after having been reasonably discovered, and within no more than seven days after receiving notice from the City.

Prohibitions/Consumption Reduction Method
Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited
Limits on washing vehicles to using a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or at a commercial car washing facility that utilizes a re-circulating water system to capture or reuse water
Drinking water served upon request only at eating or drinking establishments.
Commercial lodging establishments must provide the option to not launder linen daily.
No installation of single pass cooling systems in buildings requesting new water service.
No installation of non re-circulating water systems in new commercial car washes, new laundry systems, or other new water intensive operations as determined by the city.
Restaurants are required to use water conserving dish wash spray valves.
All commercial conveyor car wash systems must have installed operational re-circulating water systems, or must have secured a waiver of this requirement from the City.

Table 5-13: Water Shortage Prohibitions and Consumption Reduction Methods

Prohibitions/Consumption Reduction Method	Stage When Method Takes Effect
Limits on Watering Days. Watering or irrigating of lawn, landscape or other vegetated area with potable water during the months of April through October is limited to three (3) [Level 1] or two (2) [Level 2] days per week on a schedule established and posted/noticed by the City. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than one (1) day per week on a schedule established and noticed by the City.	Level 1 or Level 2
Obligation to Fix Leaks, Breaks or Malfunctions. All leaks, breaks, or other malfunction in the water user's plumbing or distribution system must be repaired within seventy-two (72) hours [Level1], or forty-eight (48) hours [Level 2], or twenty four (24) hours [Level 3], of notification.	Level 1, Level 2 or Level 3
Limits on Filling Ornamental Lakes or Ponds. Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under this ordinance.	Level 2
Limits on Washing Vehicles. Using water to wash or clean a vehicle is prohibited except by used of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, by high pressure/low volume wash systems, or at a commercial car washing facility that utilizes a re-circulating water system to capture or reuse water.	Level 2
Limits on Filling Residential Swimming Pools & Spas. Re-filling or more than one foot per week, and initial filling of residential swimming pools or outdoor spas with potable water is prohibited.	Level 2
No Watering or Irrigation. Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited.	Level 3
New Potable Water Service. The City, dependent on an analysis of water supply, may decide not to (a) provide new potable water services; (b) provide new temporary meters or permanent meters, and (c) issue any statements or immediate ability to serve or provide potable water service except under the circumstances laid out in Appendix F.	Level 3

5.4.2 Penalties and Charges for Excessive Use

The City's above mentioned ordinance has put into place penalties and charges for being in violation of the ordinance, listed in Table 5-14. Penalties and fines increase with each successive violation, where each day that a violation of the ordinance occurs being a separate offense.

Table 5-14: Penalties and Charges for Excessive Use

Penalties or Charges	When Penalty Takes Effect
Any violation may be prosecuted as a misdemeanor or as an infraction, at the discretion of the city. A misdemeanor is punishable by imprisonment in the county jail	Violation of Ordinance No.4122

Penalties or Charges	When Penalty Takes Effect
for not more than thirty (30) days, or by a fine not exceeding one thousand dollars ($1,000), or both.	
A fine not exceeding $100	First Violation
A fine not exceeding $200	Second Violation
A fine not exceeding $500 i. Water Flow restrictor: in addition to any fines, the City may install a water flow restrictor device of approximately one gallon per minute capacity for services up to one and one-half inch size and comparatively sized restrictors for larger services after written notice of intent to install a flow restrictor for a minimum of forty eight (48) hours. ii. Termination of Services: In addition to any fines and installation of a water flow restrictor, the City may disconnect and/or terminate a customer's water service.	Each Additional Violation of same provision within one year
A person or entity that violates the ordinance is responsible for payment of the City's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the City's schedule of charges then in effect.	Violation of Ordinance No.4122

5.4.3 Emergency Response Plan

In addition to its conservation ordinance, the City has in place an Emergency Response Plan, updated in April 2009, for the purposes of responding to catastrophic events. Specifically the Emergency Response Plan has been developed to provide multi-use emergency operations guidance for the City's Water Operations Division. Catastrophic events may include: natural hazards (earthquakes, severe storms, flooding and erosion), accidents and intentional acts (fire or explosion, chemical release, loss of power, raw water contamination, finished water contamination), or threats.

The Emergency Response Plan has as its objective, the mitigation of the effects of hazards, execution of measures to preserve life and minimize damage, enhanced response during emergencies and provision of necessary assistance, and establishment of a recovery system to return the City water system to its normal state. Emergency contacts, staff responsibilities and emergency procedures and protocols have been established to ensure the most efficient and effective use of staff resources. This plan can be found in Appendix G.

General activities the City will use in response to a catastrophic interruption of water supplies as defined in the Emergency Response Plan include:

<u>Initial Activities</u>

- Activate the appropriate level of the emergency plan and the City's emergency management organization.
- Mobilize emergency response personnel as needed.
- Activate the EOC if needed.
- Notify other agencies, such as City and County Emergency Management and State Public Health Department.
- Begin damage inspections.
- Evaluate safety of facilities.
- Begin documentation process, including photos and video recording.
- Activate emergency communications systems as needed.
- Activate emergency response measures when necessary, such as the following:
    - Mutual aid/assistance agreements.

    - Contracts for emergency supplies (including water) and equipment.
    - Obtain support supplies for recovery personnel (food, water, housing, etc.).
    - Emergency time-keeping methods to record employee hours worked (including overtime and contracts).
    - Inter-agency coordination of resources, including water supplies.
    - Interface with media.
    - Assist employees with personal emergencies (home or work) using Employee Assistance Programs.
    - Develop repair and restoration plans.
- Establish an emergency action plan within 3 hours and review it every shift change.

<u>Within 24 Hours</u>

- Staff the EOC 24 hours a day in 8 to 12 hour shifts, as needed.
- Within 8 hours, complete a preliminary damage inspection (refer to Damage Assessment in Annex C). Identify alternatives for providing temporary services, if necessary, pending full restoration, and locate and arrange for emergency equipment and personnel resources.
- Set up financial object codes to capture FEMA cost allowance information.
- Issue Water Quality Control advisories as required by the local health department or State Department of Emergency Management.
- Establish restoration priorities and initiate emergency repairs.
- Make external notifications to local governments, regulatory agencies, essential suppliers, major customers, and others as indicated.
- Request mutual aid/assistance resources as warranted by the situation.
- Advise all employees of the situation, work schedules, compensation provisions, and similar matters.
- Review the status of the water utility's personnel and equipment resources and be prepared to respond to requests for mutual aid/assistance.
- Provide public and employee information announcements as indicated.

<u>Within 72 Hours (Sustained Operations)</u>

- Update restoration priorities.
- Reassess the need to make, modify, or rescind Water Quality Control advisories in consultation with local and state health authorities.
- Review water utility finances and make adjustments if necessary to meet priority response and recovery needs.
- In conjunction with other local agencies, initiate requests for state and federal disaster assistance, as warranted.
- Continue damage inspection, emergency repairs, public and employee information announcements, and liaison with external agencies.
- Review previous actions.

<u>Deactivation</u>

- Authorized deactivation of field response or EOC sections, branches, or units when they are no longer required.
- Deactivate the EOC and close out logs when the emergency no longer requires activation.
- Notify adjacent facilities and other EOC, as necessary, of planned time for deactivation.

- Ensure that any open actions not yet completed will be taken care of after deactivation.
- Be prepared to provide input to the After Action Report.

5.4.4 Impacts on Revenue and Expenditures

The City water revenues are derived from two primary sources - a water meter availability charge and a water consumption rate. The water meter availability charge is primarily used for maintaining the water system and service connections to the customer, whether or not water is sold. The water consumption rate is based on the amount of water used. As water consumption by the City's water customers decreases due to water conservation efforts or water shortages, the water sales component of the revenue generated through sales also decreases. Due to the way the rate is structured, operational expenses to produce water nearly equal the loss in revenue from cutbacks in production, and the revenue lost does not significantly impact the City's daily operations. The City is in the process of preparing a cost of service study which will include potential rate impacts of the overall cost to meet the City's projected demand, and will include the impacts of water quality regulations, tighter water quality standards and implementation of conservation projects and non-potable reuse projects.

In the event of a drought generated revenue shortfall, several measures (listed below) will be reviewed and explored to meet the fiscal challenge.

- Reduce the current operation and maintenance expenses
- Reduce future projected operation and maintenance expenses
- Prioritize and defer selected capital construction projects
- Increase the base rate to meet new demand and to establish a substantial revenue base
- Increase commodity charge and water adjustment rate to cover revenue requirements

A combination of the above measures could be used to offset or diminish the effects of lost revenue due to water shortage. Capital construction projects could be deferred, depending on revenue availability at the time. Other capital programs could be prioritized. However, with the worst scenario of drought and the inability to produce groundwater, the City would have to postpone capital projects that would not affect the health and safety of residents, until a later date.

Section 6 Water Use Efficiency

This Section describes the City's water demand management measures (DMMs) which have been or are planning to be implemented. The City is either implementing or has scheduled for implementation all DMMs described in the UWMP Act. Additionally, this section also describes programs which the City plans on implementing that will help it to meet its urban water use target.

6.1 Current and Planned Demand Management Measures

The City is a signatory to the MOU regarding Urban Water Conservation in California and is therefore a member of the CUWCC. As a member of the CUWCC, the City's filing of Best Management Practice Reports (BMP) with the CUWCC meets the DMM requirement of the UWMP Act. The BMP reports for 2009-2010 are included with this report (see Appendix H) and have been filed electronically with the CUWCC according to designated procedure. The City has, in good faith, tried to address and comply with all of the BMP targets listed in the CUWCC MOU where applicable.

Table 6-1 lists the BMPs outlined by the CUWCC and identified in DWR's Guidebook, and shows how they relate to the UWMP DMMs. This section briefly describes the City's actions taken to comply with the DMMs.

Table 6-1: DMMs for Urban Water Management in California

DMM	BMP	Description
A	3.1, 3.2	Water survey programs for single-family residential and multifamily residential customers
B	3.1	Residential plumbing retrofit
C	1.2	System water audits, lead detection, and repair
D	1.3	Metering with commodity rates for all new connections and retrofit of existing connections
E	5	Large landscape conservation programs and incentives
F	3.3	High-efficiency washing machine rebate program
G	2.1	Public information programs
H	2.2	School education programs
I	4	Conservation programs for commercial, industrial, and institutional accounts
J	1.1.3	Wholesale agency programs
K	1.4	Conservation pricing
L	1.1.1	Water conservation coordinator
M	1.1.2	Water waste prohibition
N	3.4	Residential ultra-low-flush toilet replacement program

6.1.1 Water Survey Programs for Single-Family Residential and Multi-Family Customers

Water surveys provide residents with valuable information about their water use. Trained conservation professionals test the water flow rates using devices inside the home, such as showerheads, toilets, and sink aerators to make sure they are water efficient. They also check for leaks and teach the resident how to read the water meter correctly. A comprehensive evaluation is conducted on the outdoor landscape to identify inefficiencies and recommend ways the resident can save water outdoors. The City regularly participates in programs offered by TVMWD when the program offers surveys to the highest demand residential customers.

The number of surveys completed is listed in the City's BMP Activity Reports in Appendix H. The City intends to continue implementation of this program in conjunction with the distribution of water saving devices listed under the next BMP, Residential Plumbing Retrofits, to help it to meet its urban water use target.

6.1.2 Residential Plumbing Retrofit

This BMP recommends the distribution and retrofit of low-flow showerheads, toilet displacement devices, and faucet aerators, as well as the adoption of enforceable ordinances. The City assumes that passive conservation has occurred over the past several years related to this BMP, and will be working to determine the number of homes that still require retrofit in order to develop a plan to target these older homes. The survey will be taking place by 2012 with the plan developed thereafter. To meet its urban water use target, the City is planning to implement projects that distribute both indoor and outdoor water conserving devices such as:

- Weather based irrigation controllers (WBICs)
- Self-closing water nozzles
- Low-flow showerheads
- Sink aerators

These devises are expected to reduce indoor residential water use by up to 12 gpd per customer, and reduce outdoor residential water use by up to 12 gpd for those customers taking part in outdoor water surveys, and up to 37 gpd for those customers who install a WBIC.

6.1.3 System Water Audits, Leak Detection, and Repair

In May 2009, the American Water Works Association (AWWA) published the 3rd Edition M36: Manual Water Audits and Loss Control Programs. Included, was a new BMP 1.2 to replace the old BMP 3 and incorporated new water loss management procedures as they apply to California. As a result, retail water agencies are expected to use the AWWA Free Water Audit Software to complete their standard water audit and water balance. Implementation shall consist of actions such as standard water audit and water balance, validation, and economic values, among others. The City regularly monitors its system and repairs leaks in a timely manner. Also, with the latest CUWCC submittal included in Appendix H, the City provided the completed Water Audit worksheets and will continue to refine the necessary collection of data over the next several years. The continued implementation of this project will reduce the City's overall use of water supplies and help it to meet its urban water use target.

6.1.4 Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

This BMP requires potable water systems to meter all connections, and bill customers by volume of use. The City has no unmetered accounts, and all accounts are billed volumetrically. The City also has some dedicated landscape meters.

6.1.5 Large Landscape Conservation Programs and Incentives

This BMP requires that agencies provide non-residential customers with support and incentives to improve their landscape water efficiency. MWD/TVMWD has provided free large landscape surveys and incentives for devices such as smart irrigation controllers and rotating sprinkler nozzles. The City provides links to these incentives on the City website as well as has participated in a large landscape survey of City owned property.

The City plans to dedicate funding to perform large landscape surveys beginning in FY 2013 which will help it to meet its urban water use target. It is estimated that this project will reduce large landscape water use by up to 35%.

6.1.6 High-Efficiency Washing Machine Rebate Programs

This BMP requires financial incentives to be provided to customers for the purchase of high efficiency clothes washers (HECW). Since 2005, the MWD has provided rebates for high-efficiency clothes washers to its member agencies (including the City's wholesaler, TVMWD). MWD has branded the term BeWaterWise to develop market recognition. In order to motivate the public to purchase the most efficient washers possible, MWD developed a rebate that allowed only washers with a Water Factor of 4.0 or less to qualify for a $100 washer rebate. The washer rebate incentive continues to be an effective tool to achieve water conservation. Details regarding the number of rebates distributed can be found in the City's BMP Activity Reports in Appendix H.

The City plans to continue to implement this program to help it to meet its urban water use target. The high efficiency washing machine rebate program would provide a rebate to single family and multi-family residential customers for purchasing a high efficiency washing machine which is estimated to save up to 28 gpd for single family customers and up to 107 gpd for multi-family customers.

6.1.7 Public Information Programs

Water utilities are to provide active public information programs to promote and educate customers about water conservation. The City regularly hosts and participates in community events, provides bill stuffers and attends community meetings to encourage water conservation. One of the events hosted is the annual watershed cleanup which is a multi-agency effort designed to encourage public awareness of the effect that litter/illegal dumping has on water supply sources. Additionally, the City is an active member of the Water Education Water Awareness Committee which is a regional water conservation group dedicated to increasing the awareness of water as a precious resource. This group has sponsored drought tolerant landscape plantings at the Los Angeles County Fair, developed school video contests and hosted various other water conservation events.

The City will continue to implement public outreach and advertising programs to help it to meet its urban water use target.

6.1.8 School Education Programs

This BMP requires water agencies to provide active school education programs to educate students about water conservation and efficient water uses. For a number of years the City has hired a theater program to ensure the school education program meets the needs of students and teachers. The City has sponsored several schools that have participated in the MWD/TVMWD Solar Splash competition designed to increase awareness of alternative boating methods that encourage cleaner air and protection of water quality. The City is an active participant in the MWD Coloring contest and has had consecutive winning entries with the participants honored at MWD as well as at regular City Council meetings. The City hosts a Pomona Enrichment Program (PEP) which helps to educate children on the civic process. As part of that outreach effort, the City has consistently provided environmental education messages and programs.

The City plans to continue its school outreach efforts. The City will continue to implement school education programs to help it to meet its urban water use target.

6.1.9 Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts

This BMP requires water agencies to provide a water survey of 10% of commercial, industrial and institutional customers within 10 years and identify retrofitting options. Alternatively, a water agency may reduce water use by an amount equal to 10% of the baseline use within 10 years. As of 2011, the City's billing system is in the process of being upgraded. The upgraded billing system should provide the flexibility to identify these types of customers as well as the consumption patterns. Upon completion of the upgrade, the City will be creating an implementation plan for this BMP. The upgrade will be completed in 2011 with the phased implementation plan developed thereafter. It is anticipated that funding for the surveys will be programmed in the FY 2013 budget process.

6.1.10 Wholesale Agency Assistance Programs

This BMP is not applicable to the City as it isn't a wholesale agency.

6.1.11 Conservation Pricing

This BMP requires water agencies to eliminate non-conserving pricing policies and adopt a pricing structure such as uniform rates or inclining block rates, incentives to customers to reduce average or peak use, and surcharges to encourage conservation. The City has had tiered pricing for a number of years. In 2007, the City's conservation pricing was restructured to add a third tier to single family residential customer pricing on top of the existing second tier. Following this restructuring, the City saw a marked reduction in consumption. Table 6-2 shows the pricing tiers for single family residential users.

Table 6-2: Single Family Residential Pricing Tiers

Tier	Units of Water Use (100 cubic feet = 1 consumption unit)
1	1 - 15 Units
2	16-75 Units
3 (added in 2007)	76 and above

6.1.12 Water Conservation Coordinator

The City has had a staff member responsible for implementing the City's water conservation program since 1994. The current position title is Environmental Program Coordinator.

6.1.13 Water Waste Prohibition

Water agencies are to adopt water waste ordinances to prohibit gutter flooding, single-pass cooling systems in new connections, non-recirculating systems in all new car wash and commercial laundry systems, and non-recycling decorative fountains. The City adopted a revised water conservation ordinance in 2009 (Appendix F) which accomplishes these requirements through the permanent water conservation requirements which are also listed in Table 5-12 of this UWMP. The City also has a "Water Watcher" reporting line that allows the City's community members to report violations of this ordinance and allows the City to investigate the issues in a timely manner.

6.1.14 Residential Ultra-Low-Flush Toilet (ULFT) Replacement Programs

This BMP requires water agencies to replace older toilets for residential customers at a rate equal to that of an ordinance requiring retrofit upon resale. The City's 2009 ordinance, available in Appendix F, strongly encourages retrofit upon resale or change in service under "Other Provisions" as follows:

(1) Retrofits Upon Sale or Transfer: It is strongly encouraged that structures sold or transferred meet current City and Plumbing codes for water-conserving plumbing fixtures

(2) Change in Service: Upon the establishment of new water service or a change in water service from one person to another non-family member, the customer will be encouraged to retrofit plumbing fixtures with water-conserving plumbing fixtures.

6.2 Additional Conservation Programs

In addition to the programs described in the BMPs above, the City plans to implement additional conservation programs to further assist it in meeting its urban water use target.

Automatic Meter Reading (AMR)/Advanced Metering Infrastructure (AMI)

The AMR/AMI phased program will allow the City to collect accurate, real time consumption as opposed to basing consumption on previous or predicted consumption. This information will allow the City to better control water consumption. Though savings cannot be quantified, it is expected that this program will help the City in meeting its urban water use target.

Turf removal rebates

The City has begun to take part in the SoCal WaterSmart Residential Turf Removal Program in partnership with MWD. This program provides rebates to City customers to remove turf and replace it with drought tolerant landscaping or permeable groundcover. Though water savings have not been estimated for this project, outdoor water use is assumed to make up approximately 70% of household water use, or approximately 6,800 af for single family households in 2010 which allows for high potential water savings. It has been estimated that replacing turf with alternative groundcover could reduce outdoor water use by 40-60%.

Section 7 References

A&N Technical Services, Inc (A&N), 2005. BMP Costs & Savings Study. Prepared for the California Urban Water Conservation Council. Draft Revision.

Carollo, 2009a. Recycled Water Master Plan. Prepared for the City of Pomona. Dated November 2009.

Carollo, 2009b. Pedley Filter Plant Feasibility Study. Prepared for the City of Pomona. Dated April 2009.

Chino Basin Watermaster, 2011. Chino Basin Watermaster 33rd Annual Report, Fiscal Year 2009-10. http://www.cbwm.org/docs/annualrep/33rd%20Annual%20Report.pdf.

Metropolitan Water District of Southern California (MWD), 2010. Draft Regional Urban Water Management Plan.

MWH, 2005. Water and Recycled Water Master Plan. Prepared for the City of Pomona. Dated May 2005.

PBS&J, 2009. City of Pomona Water Supply Assessment for the Proposed Pomona Valley Hospital Medical Center – Specific Plan and Phase I Development. Dated March 2009.

RMC Water and Environment (RMC), 2010. Technical Memorandum 1, Baseline Analysis. Prepared for the City of Pomona.

Six Basins Watermaster, 2010. Six Basins Watermaster 2009 Annual Report.

Three Valleys Municipal Water District (TVMWD), 2010. Draft Regional Urban Water Management Plan.

Appendix A - Urban Water Management Planning Act

Appendix B - DWR UWMP Checklist

Appendix C - Notification Documents & Resolution Approving the 2010 UWMP Update

Appendix D - Chino Basin Judgment

Appendix E - Six Basins Judgment

Appendix F - Water Conservation and Water Supply Shortage Program and Regulations

Appendix G - Emergency Response Plan

Appendix H - BMP Activity Reports, DMM Supplement

This appendix contains the draft 2009-2010 BMP reports to be replaced with the CUWCC approved 2009-2010 BMP reports once available.